WORLD PLOUGHING ORGANIZATION

1967 WORLD PLOUGHING CONTEST

CHRISTCHURCH
NEW ZEALAND
MAY 12TH & 13TH

ALSO Atlantic Silver Plough FINAL MAY 11

OFFICIAL HANDBOOK

A New Zealand
high country station

a magnificent setting for the MF135:
The world's top selling tractor

MASSEY-FERGUSON'S RUGGED BREED. A MODEL FOR EVERY FARMING NEED!

Sole N.Z. Distributors: **C. B. NORWOOD LTD.**, L.M.V.D., P.O. Box 298, Wellington. **DEALERS EVERYWHERE.**

R. H. Williams

Fourteenth

WORLD PLOUGHING CONTEST

Official Handbook 1967

Edited by:

ALFRED HALL and C. NIVEN TODD

12th and 13th May, 1967

PREBBLETON - BROADFIELDS

CHRISTCHURCH, NEW ZEALAND

His Excellency The Governor-General

Brigadier Sir Bernard Fergusson,

G.C.M.G., G.C.V.O., D.S.O., O.B.E.

GOVERNMENT HOUSE
NEW ZEALAND

Ploughing was one of the earliest, and still remains one of the most important manifestations of Civilisation; and for the skill of the Ploughman, whether with a simple share or with the more sophisticated implements of the present day, there is still no substitute.

I therefore welcome in The Queen's name all those from near or far who have come to participate in, or to witness, the World Ploughing Contest here in Canterbury.

Bernard Fergusson
Governor-General.

© 1967

Produced for the World Ploughing Organisation by the New Zealand Ploughing Association Inc. Printed by Simpson & Williams Ltd., Christchurch, New Zealand.

World Ploughing Organization

Date of Foundation

1. First international provisional Governing Board set up at Workington, Cumberland, England on 5th February, 1952.
2. Governing Board established at two international meetings held on the 13th November, 1952, at Stirling and Bridge of Allan respectively, in Scotland.

Objects of World Ploughing Organization

(a) To foster and preserve the art, and improve the skill of, ploughing the land.
(b) To promote World Championship Ploughing Contests.
(c) To provide for demonstration work and trade displays.
(d) To urge the development and adoption of improved techniques and aids to man in all branches of agriculture.
(e) To foster a vigorous spirit of cooperation and enterprise in producing food for an increasing world population.
(f) By these means to encourage fellowship and understanding amongst the peoples of all nations.
(g) To support and cooperate with other bodies or associations in the furtherance of these objects.

Membership

A country must qualify for membership of the World Ploughing Organization by satisfying the Governing Board that it possesses a national organization which organizes an annual national championship ploughing match at which the competitors have qualified for entry by being successful in local and/or regional ploughing matches. Each country elected to membership is represented as a member through the affiliation of the national ploughing organization.

Administration

The Governing Board normally holds annual meetings in spring and autumn.

The World Ploughing Contest is held in a different country each year. The two champion ploughmen from each participating country compete for the World Championship title and the "Golden Plough" trophy.

A public function is held following each Contest and, if possible, conferences on soil cultivation problems are also held about the time of the contest in collaboration with scientific institutes, University agricultural colleges and agricultural machinery manufacturers.

THE PRIME MINISTER
THE RIGHT HONOURABLE KEITH HOLYOAKE, C.H.

There are now many international bodies which by promoting and fostering friendly competition and greater contact between nations, further the cause of world peace. With greater contact between peoples comes increased international understanding and goodwill.

One such international body is the World Ploughing Organisation which since 1953 has sponsored the World Ploughing Contest. I am delighted that New Zealand has been selected as the venue for this year's contest.

On behalf of the Government and people of New Zealand, I extend a warm and friendly welcome to all contestants and visitors from the 18 countries taking part. It is my earnest hope that you will all enjoy your visit to these shores and return to your homelands with many happy memories of your stay among us.

Keith Holyoake

WHATEVER THE COUNTRY..

IT'S EASY TO RECOGNISE WOOLMARK

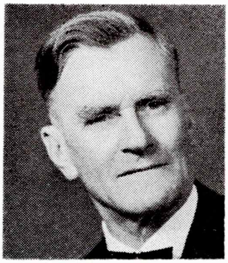
PURE VIRGIN wool

TRADE MARK

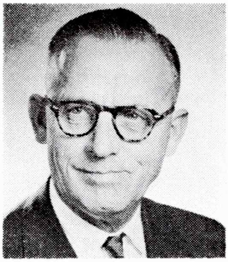
THE INTERNATIONAL QUALITY SYMBOL
FOR PURE VIRGIN WOOL PRODUCTS

GOVERNING BOARD

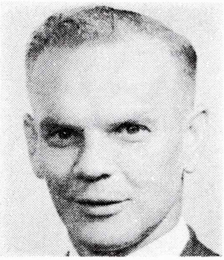
WORLD PLOUGHING ORGANIZATION



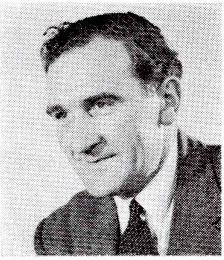
Walter Feuerlein
Germany
Chairman
Soil Research Scientist



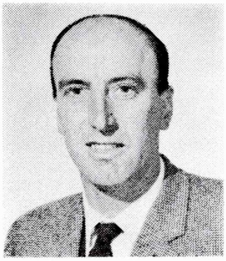
Alex McKinney
Canada
Vice-Chairman
Farmer, dairy



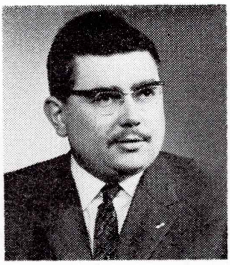
Philip Palmer
Great Britain
Treasurer
Bank officer (Farmer's son)



Alfred Hall
Great Britain
General Secretary
Farmer, sheep, cattle
Journalist



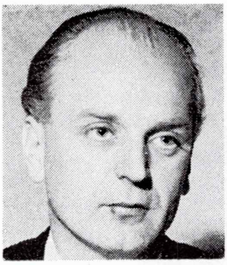
Alfred Silvester Garoni
Australia
Farmer, milk, tobacco



Jules Etienne Cocu

Belgium

Farmer, beef Cattle dealer



Franz Geiger

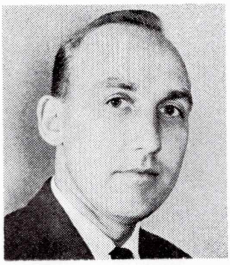
Austria

Director of Agricultural Education

Dusan Hutla

Czechoslovakia

Head of Agricultural Machinery Research Institute at Chodov, near Prague.



Daniel Jepsen

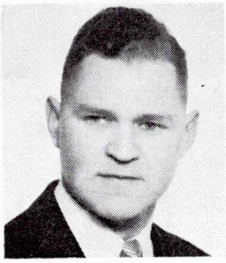
Denmark

Agriculture teacher

A. D. Faunce

F.A.O. (Italy)

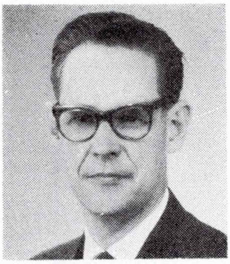
Chief Agricultural Engineering Branch Land and Water Development Division of F.A.O. of the United Nations



Einar Wold

Norway

Bogland Reclamation Specialist



Walter Breitenstein

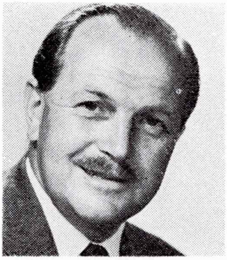
Finland

Managing Director of the Agricultural Advisory Society of Nyland

Torbjörn Sjögren

Sweden

General Secretary of the Association of Young Farmers of Sweden



Eric R. Linnell

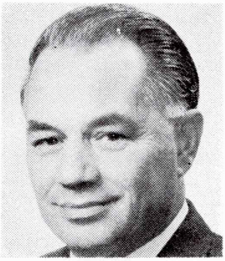
Rhodesia

Farmer, tobacco, maize, wheat, cotton, rice and beef

Jakob Cezek

Yugoslavia

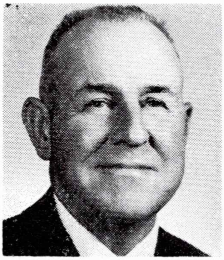
Farm machinery research worker



Karlheinz Gebbers

Germany

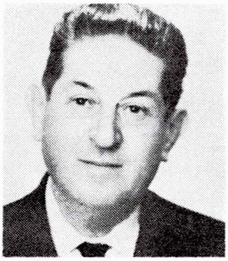
Senior Councillor, Ministry of Agriculture. Director of the German Rural Youth Advisory Service



Leo K. Drake

United States of America

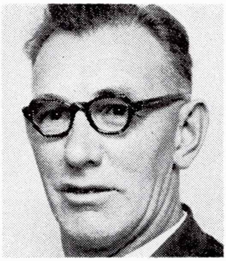
Farmer, corn, soya beans, wheat



Pierre Monnier

France

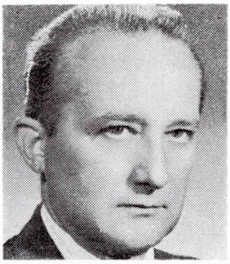
Manager of Agricultural Retailers and Public Relations Department Esso Standard-France (Retired)



Sean O'Farrell

Republic of Ireland

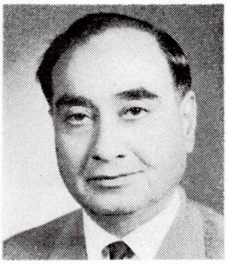
Farmer
Licensed vintner



Kálmán Lammel

Hungary

Professor, Doctor, Head of the Horticultural Viticultural department at the Budapest College



Sardar Muhammed Ghazanfarullah Khan

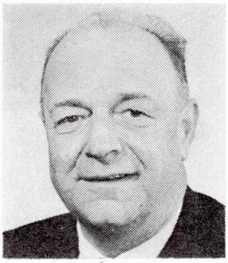
Pakistan

Farmer
Agricultural machinery distributor

Evan A. E. Fairhall

New Zealand

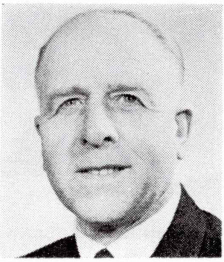
Farmer, wheat, oats, barley, peas, small seeds, sheep



William Thomas Baker

Great Britain

Farmer, cattle and sheep breeder



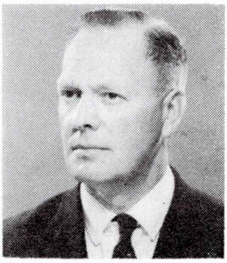
Thomas Carlisle Reid

Northern Ireland

Retired farmer
Sales Production Manager

Pietro Germani

Italy



Arie C. Stehouwer

Netherlands

Farmer, sugar beets, vegetables

Ploughmen's Progress

by Alfred Hall, General Secretary, W.P.O.

To try to plough without first being trained to the job is sheer frustration. It is nerve-racking, body-wearing drudgery. The plough bounces and rolls all over the place and the earth alternately twists, flies, clogs the plough, and flops back into the furrow leaving a mess of mounds and ruts. All this because of the missing factor which is control.

It is just like digging a garden. Some dig laboriously and feel wretched, others seem to dig at ease and even enjoy it. It depends upon whether or not one employs a technique. When the technique is good then the final product of the work is good too.

It is natural for a despairing beginner to studiously watch the manner of the calmly working expert and gather as much advice from him as he can. Then, having improved himself, it is again natural for him to compare his own new work with that of the master. To do so they may even plough alongside each other — as in a ploughing match.

CHALLENGE

The soil presents man with a challenge which if taken up in a brash, uncertain way exhausts and defeats him. The challenge to till the soil in a satisfactory manner demands patient study and careful work to meet it. Ploughing can be hard and, as mentioned before, frustrating work unless one knows how to do it properly. This is perhaps why for generation after generation man has tried to do away with ploughing and devise easier ways to prepare land to grow crops.

On the other hand, man has accepted and met the challenge of the soil by so improving his techniques that to the skilled person ploughing is an art which he can accomplish with satisfaction and to a good result. Through this kind of endeavour has been determined the best techniques and types of equipment for particular soils, climatic conditions and crops to be grown. Hence we find that in many areas where local ploughing matches are held, specific styles of ploughing are peculiar to each area.

When ploughs ultimately became mass-produced in centralised factories the types of ploughs became fewer and in more general use. Nevertheless, different kinds of ploughs were still required to be made for differing soils and varying conditions in different parts of the world. When ploughing matches developed from local events into National and World Contests it was necessary to adopt a common style of ploughing as the test for the ploughmen. This was achieved with much thought and research and is the style of ploughing required by the rules of the World Ploughing Contest. On both stubble and grassland the World Ploughing Organisation style serves well under many, if not most, conditions. It may be a compromise style but it is also a practical, commercial style and experience has shown that ploughmen can do it well. Experience has also shown that good ploughmen are sufficiently versatile to adapt themselves to any set of given conditions and make a good job of cultivation. A good ploughman from Finland should be a good ploughman in India, too, even though the conditions obtaining and the equipment needed might be considerably different in each place.

TO PLOUGH OR NOT TO PLOUGH?

These facts very much concern the minds of the members of the World Ploughing Organisation Governing Board who are aware that, as more countries take up membership of W.P.O. and adopt ploughing matches as an educational aid towards the improvement of the husbandry of the soil to increase food production, what might suit several humid districts will not necessarily prove satisfactory in arid areas. For instance, the style of ploughing and the type of plough which are satisfactory in a clay soil where rainfall is heavy and frosts severe may be completely out of place in a sandy soil where there is almost permanent drought and tropical heat. Under some cimcumstances the wrong plough and the wrong kind of ploughing could do more harm than good. Perhaps the tillage could be better accomplished without a plough at all!

However, the plough continues universally to be the principle tool for primary cultivation and the mastering of its operation develops in men a conscientious sense of service to the precious earth for the care of which they are responsible. There is no doubt that the plough plays a dual role as a cultivator of the soil and a cultivator of men's minds. It is said that "good ploughmen make good citizens".

Consequently, the scope of the work of the World Ploughing Organisation is not limited to running a ploughing competition to decide who is the world's champion ploughman. This function is important because it establishes high standards and encourages interest in craftsmanship. What W.P.O. tries to do, and it is believed does do with some success, is to promote a better understanding of the value of soil cultivation practices.

WELCOME DEVELOPMENT

Now that the influence of W.P.O. extends into countries with sub-tropical and tropical climates a committee of international soil scientists and tillage machinery experts has been formed for the purpose of determining the rules for ploughing and suitable types of ploughs and tillage practices for warm, hot and dry climatic regions. This development has been welcomed by F.A.O. and by researchers in many parts of the world.

Now the W.P.O. Tillage Research Committee is collecting relevant data and planning cooperation in experimental studies with a number of selected research institutes in the regions concerned. In agricultural development regions W.P.O. can help through three complementary activities: first, by determining the best techniques and types of equipment; secondly, by practical demonstrations and instruction on the principle of learning by doing, conducted by the world's champion ploughmen and the introduction of competitions to encourage the highest standards of workmanship, and thirdly, advise upon the formation and administration of organizations to promote national and regional ploughing matches in which ploughmen will qualify to participate in World Ploughing Contests.

AID INVITED

The W.P.O. has promises of practical cooperation towards carrying through these action projects but some finance is also necessary. W.P.O. believes that the adoption of tools and techniques is speeded up by practical example and trial mixed with some spirit of competition as an incentive. It is forseen that the tools and techniques will be determined by the W.P.O. research group; the example of the way to use them will be demonstrated to the farmers in each country concerned by the world champion ploughman or other World Contest participant. The farmers will learn by doing and following the example set, and they will improve themselves and spread an interest in and a knowledge of, the work by competing in matches to achieve higher standards.

In all this educative effort W.P.O. has the will and the plan to help. To enable W.P.O. to expand its work to all parts of the world in the encouragement of good soil cultivation practices and the promotion of friendly international relationships, the W.P.O. Trust has been formed under the joint Chairmanship of Lady Crathorne, O.B.E. (Great Britain) and Mrs Claire Giannini Hoffman (U.S.A.) With the help of a generous donor a new illustrated brochure telling about the World Ploughing Organisation has been produced. A copy will gladly be sent to anyone interested and the Chairmen of the Trust will be pleased to have the support of wellwishers in order to foster a vigourous spirit of cooperation and enterprise in producing food for an increasing world population.

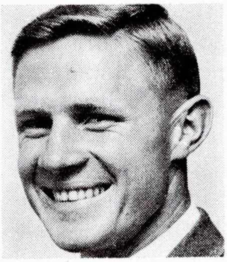
COMPETITORS

Australia

LEONARD J. CLARK, Monomeith, Victoria.

Age 39. Married. Farmer and Agricultural Contractor.
Type of farm: 130 acres, grazing, sheep.
Twice State champion, twice National champion.
Hobbies: Ploughing and machinery.
Secretary West Gippsland Ploughing Association.

Tractor: David Brown. Plough: Kverneland.

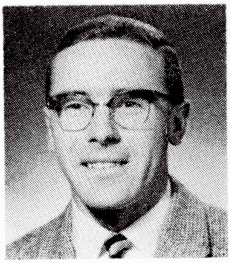


PETER HERBERT ANDERSON, "Cliffvale", Werombi Road, Camden, New South Wales.

Age 25. Married. One child. Dairy Farmer.
Type of farm: 450 acres, mixed. Pasture, lucerne (for hay) and potatoes. Friesian cattle.
National champion in 1966.
Sport: Cricket.
Active in church work, lay preacher.

Tractor: David Brown. Plough: Kverneland.

Canada



CARL BERTRAM WILLIS, B.Sc., Ph.D. 9 Ellis Road, Charlottetown, Prince Edward Island.

Age 29. Married. One child. Research Scientist.
Represented Canada in World Ploughing Contests 1959 - Northern Ireland and 1965 - Norway.
Hobby: Curling.
Member of the Prince Edward Island Institute of Agrologists and the Agricultural Institute of Canada.

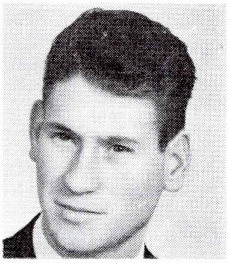
Tractor: Ford. Plough: Kverneland.

TOM HICKMAN, 395 Alder Street, Cultus Lake, British Columbia.

Age 47 years. Married. Four children. Retired Dairy Farmer.
Represented Canada in the 1962 World Ploughing Contest — Holland.
Former Horse ploughman.
Hobby: Curling.
On return from the World Contest in New Zealand Tom hopes to start a mink farm.

Tractor: Ford. Plough: Ransomes.

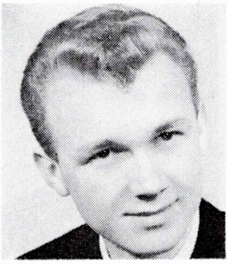
Denmark



EGON LORENZ JOHANSEN, Sdr. Hostrup, Abenra.

Age 26. Married. Farmer.
Type of farm: 42 acres, mixed. Barley, oats, fodder-beets, grass. Cattle: Red Danish. Pigs: Danish Landrace.
National Champion Ploughman in 1965.
Hobbies: Stamps and photography.

Tractor: International. Plough: Kverneland.

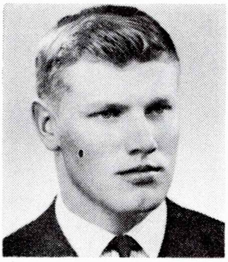


JENS PETER KRISTENSEN, Nejlinge, Helsinge.

Age 23. Single. Farmer on father's farm.
Type of farm: 37 acres, mixed. Barley, oats, fodder-beets, grass.
Represented Denmark in World Ploughing Contest 1964 - Austria, where he was placed 6th.
Hobby: Photography.

Tractor: International. Plough: Kverneland.

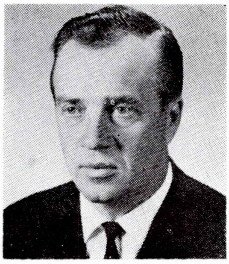
Finland



PAAVO TUOMINEN, Tarvasjoki, Finland.

Age 21. Single. Farmer's son.
Type of farm: 57 acres. Wheat, oats, barley, grass, sugar beet and potatoes. Cattle: Ayrshire; pigs and poultry.
Finnish Champion Ploughman - 1966.
Hobbies: Skiing, baseball and hunting.

Tractor: Massey-Ferguson. Plough: Fiskars.

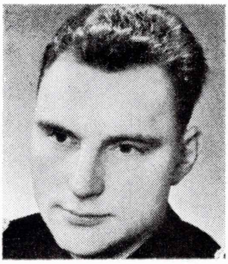


OSMO HILLEBRANDT, Karjalohja, Finland.

Age 41. Married. Three children. Farmer.
Type of farm: 92 acres. 37 acres field and 55 acres forest. Wheat, oats, barley and grass. Cattle: Ayrshire.
Hobbies: Ski-running and Ski-jumping. Olympic competitor.
Candidate for Parliament in 1966.

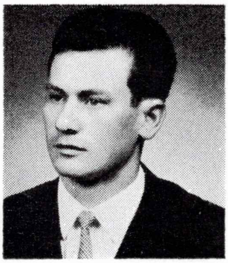
Tractor: Massey-Ferguson. Plough: Fiskars.

Germany



HANS CLAUS JESS, Mohr near 2371 Lehmbek.

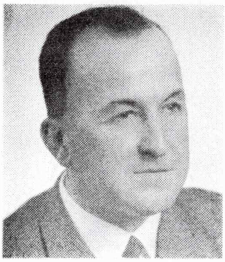
Age 29. Married. Two children. Farmer.
Type of farm: 137 acres. Grain, sugar beet and potatoes. Dairy cows, bulls, pigs for fattening and breeding.
Hobbies: Horse jumping, hunting.
Tractor: John Deere. Plough: Rower.



JOSEF SCHMID, Eck near 8301 Oberroning/ Landshut, Bavaria.

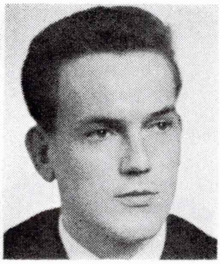
Age 25. Single. Farmer.
Type of farm: 162 acres. Wintergrain, spring grain, beet, potatoes, clover, maize. Cattle, dairy cows, pigs, poultry.
Hobbies: Hunting, skiing and swimming.
Tractor: Deutz. Plough: Kverneland.

Germany E.



ALFRED LEHMANN, Stremmen, Kries Beeskow.

Age 36. Married. Two children. Farmer.
Type of farm: 812 acres. Potatoes, fodder-beet, vegetables. Cattle and pigs.
Represent E. Germany in the World Ploughing Contest 1965 - Norway.
Hobby: Angling.
Tractor: Zetor. Plough: Fiskars.



KLAUS ZIMMERMANN, Klein Urleben, Kreis Bad Langensalza.

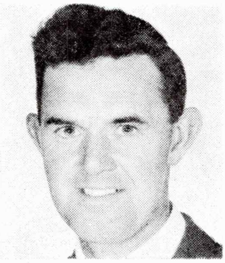
Age 24. Married. Two children. Farmer.
Type of farm: 1,200 acres. Potatoes, sugar beet, lucerne. Cattle, pigs, poultry and sheep.
Hobbies: Sports.
Tractor: Zetor. Plough: Kverneland.

Great Britain

PHILIP P. SKYRME, Gethenfield, Clehonger, Hereford.

Age 33. Married. Two children. Farmer.
Type of farm: 130 acres. Wheat, sugar-beet, potatoes, mangolds, kale and grass. Friesian cows.
Hobbies: Snooker, Association Football, tennis and cricket.

Tractor: International. Plough: Ransomes.



RAYMOND GOODWIN, Coedcowyn, Llanynis, Builth Wells, Breconshire, Wales.

Age 25. Single. Farmer.
Type of farm: 72 acres — Stock rearing.
Barley, oats, kale and swedes. Hereford cattle, Clun and Suffolk ewes.
Has ploughed since the age of 11 years.
Hobbies: Ploughing and sheep shearing.

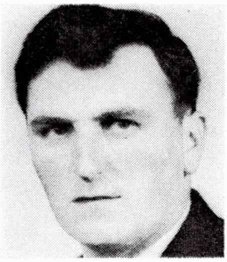
Tractor: David-Brown. Plough: Ransomes.

Czechoslovakia

ALEXANDR ABOSI, Komarovce 67, Kosice, Czechoslovakia.

Age 32 years. Married. Two children. Tractor driver.
Farm: 708 hectares (1,770 acres). Crops: Cereals and sugar beet. Livestock: Red-White cattle.
Represented Czechoslovakia in the 1965 World Ploughing Contest held in Norway.
Hobbies: Engineering.

Make of equipment:

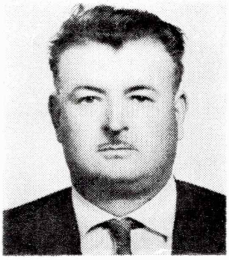


Hungary

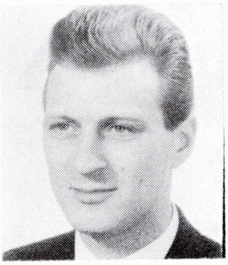
JÓZEF DUPCSÁK, Petöfi-utca 15, Halmajugra.

Age 47. Married. Two children. Farmer.
Type of farm: 2,000 acres. Wheat, maize, potatoes, alfalfa. Orchards growing vines.
Representary Hungary in the W.P.C. 1965.
Hobbies: Reading, touring, machinery, maintenance.

Tractor: Dutra-Perkins D4K.
Plough: Moson/Kverneland.

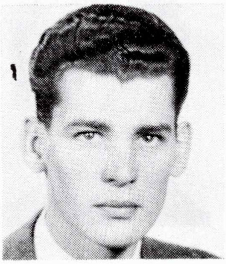


Netherlands



KLAAS EELMAN, Hoeve "Noordwijk", Oosterend (Texel).

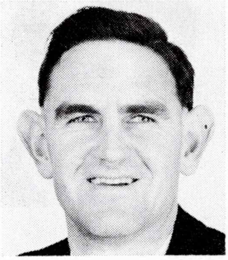
Age 28. Married. Three children. Farmer.
Type of farm: 62 acres agricultural.
National Champion Ploughman 3 times.
Representative in W.P.C. 1956 and 1964.
Hobbies: Skating and swimming.
Interested in development of agricultural techniques.



GERRIT ZWAAL, Roerdomplaan 9, Rhoon.

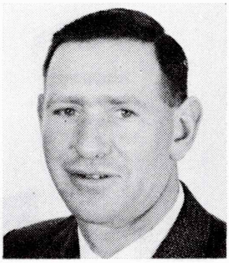
Age 29. Married. Farmer and farm machinery dealer.
Type of farm: 97 acres. Mixed fruit cultivation.
Hobbies: Volley-ball, football.

New Zealand



STEWART M. ALLISON, "Gowan Bank", No. 2 R.D., Milton, Otago.

Age 34. Married. Two children. Farmer.
Type of farm: 200 acres Agricultural and Pastoral. Wheat and Swedes. Romney, Romney-Lester cross ewes. Lester and Southdown rams.
Represented New Zealand in 1959 W.P. Contest.
Hobbies: Water skiing, miniature rifle shooting.
Tractor: Ford. Plough: Reid and Gray.



IAN B. BLAIR, Abbotsford Farm, 1 R.D., Outram, Otago.

Age 33. Married. Three children. Farmer.
Type of farm: 800 acres, mixed. Wheat, oats, winter feed crops. Sheep: Romney Border Leicester and Southdown. Beef cattle.
Hobbies: Ploughing matches, sports.
Secretary of local ploughing association.
Tractor: International. Plough: Ransomes.

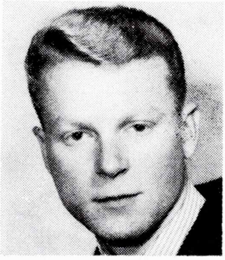
THOMAS JAMES BARR, 16 Landseer Street, Stranmillis, Belfast 9.

Age 58. Married. One child. Chauffeur.
Competed in ploughing competitions since 1954 and won many prizes.
Hobbies: Ploughing, woodwork, bowling.
Tractor: David Brown. Plough: Ransomes.

JOHN ALEXANDER BARR, Curragh, Aghadowey, Coleraine, Co. Londonderry.

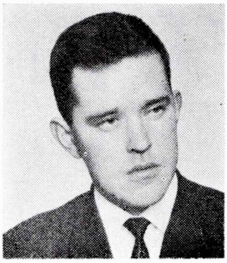
Age 43. Married. One child. Farmer.
Type of farm: 90 acres mixed. Barley, potatoes, hay. Beef cattle. Pigs large whites. Sheep. Poultry.
Represented Northern Ireland in W.P.C. 1959 Northern Ireland and 1963 - Canada.
Hobbies: Tug-of-War and ploughing matches.
Tractor: International. Plough: Ransomes.

GUNNAR HERSLETH, Valer i Ostfold.



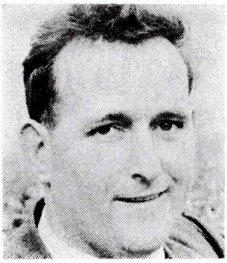
Age 20. Single. Farmer's son.
Type of farm: 125 acres mixed. Small grain, barliey. Pigs, Norwegian Landrace.
Hobbies: Shooting, choir singing.
Leader of local rural youth club.
Tractor: Ford. Plough: Kyllingstad.

ANDERS NAESS, Sakshaug, Norway.



Age 27. Single. Farmer.
Type of farm: 25 acres, mixed. Grain, potatoes, fodder for milk production. Cows: Norwegian red.
Member of the local farmers' organisation.
Tractor: Ford. Plough Kverneland.

Republic of Ireland

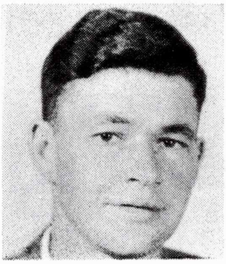


JAMES MURPHY, Bahana, St. Mullins, Co. Carlow.

Age 31. Married. One child. Farmer.
Type of farm: 150 acres. Wheat, barley, oats and sugar beet. Dairy herd: Shorthorn and Friesian. County Carlow champion for past five years.
Hobbies: Ploughing and music.
Member of the Young Farmers' and National Farmers' Organisations.

Tractor: Ford. Plough: Ransomes.

Rhodesia



SIDNEY ALEXANDER MOORCROFT, P.O. Box 31, Sipolilo.

29 years. Married. Two children. Farmer.
Type of farm: 2,400 acres. Tobacco and maize.
Competed in many ploughing competitions.
Hobbies: Golf and motor racing.
Descendant of an 1890 pioneer.

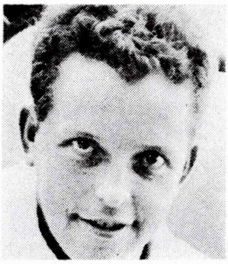
Tractor: International. Plough: Kverneland.

Sweden

STURE JOHNSSON, Kaga Östergard, Linköping.

Age 37. Married. Four children. Farmer.
Type of farm: 70 acres. Field crops.

Tractor: Massey-Ferguson. Plough: Kverneland.



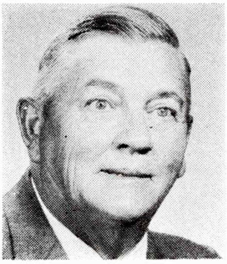
GUANNAR JOHANSSON, Skansgatan 10B, Varberg.

Age 32. Single. Tourist bus driver.
Hobby: Theatre.
Finished farming in 1960 when city of Varberg bought his farm. Has been tourist bus driver since 1960.

Tractor: Ford. Plough: Fiskars.

EARL MUIR, Odell, Illinois.

Age 28. Married. Three children. Farmer.
Type of farm: 800 acres. Beans, corn, oats. Hogs. Cattle.
Hobbies: Softball and bowling.
Director of Illinois Ploughing Organization.
Tractor: John Deere. Plough: Kverneland.



RAYMOND POOS, Eaton Ohio, RR4, Zip Code 45320.

Age 58. Married . Six children. Farmer.
Type of farm: 205 acres. Wheat, corn, Soya beans. Family farm for three generations.
Hobbies: Hunting and ploughing matches.
Tractor: David Brown. Plough: Kverneland.

STRAIGHT FURROW

PLOUGHS STRAIGHT TO THE HEART OF THE N.Z. RURAL MARKET

GUARANTEED CIRCULATION

46,500 twice monthly

OFFICIAL NEWSPAPER OF FEDERATED FARMERS OF NEW ZEALAND (INC.)

PUBLISHED BY THE POINT BLANK PRESS CO. LTD.
Wool House: 139-141 Featherston St. Wellington
Telephone 46-889 P.O. Box 1654

McCORMICK
INTERNATIONAL

434

THE SURE ONE

New quality and reliability for today's generation of ploughmen.

The 434 is the powerful new utility tractor that can boss a small farm or back up on a big one.

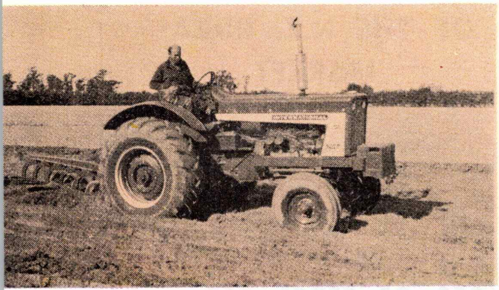
You can feel the solid "go" of its 8 forward speed transmission and tough 40 working horsepower engine.

With a name like McCormick International you know you are getting value for money in the features needed today — now standard on the 434.

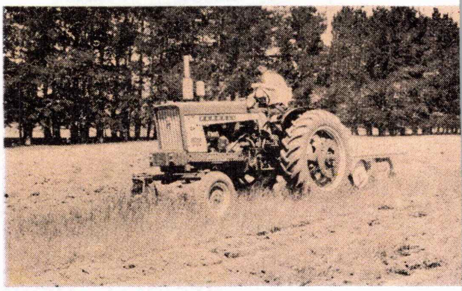
Have you tested the capabilities of this power horse on your place yet?

Illustrated at right.

McCormick International 434. Leader of the 40 working horsepower class. Vary-touch position and automatic draft control. Differential lock — double disc brakes. Adjustable front and rear axles.



International 706. Total power for big output farming 94 b.h.p. Power shift torque amplifier. Power steering. Power brakes. Power implement control. Farmall 706 available.



Farmall 504. Unmatched performance and reliability. 58 b.h.p. Torque amplifier. 3-point draft controlled hitch. Independent p.t.o. Live hydraulics. Hydrostatic power steering. International 504 available.

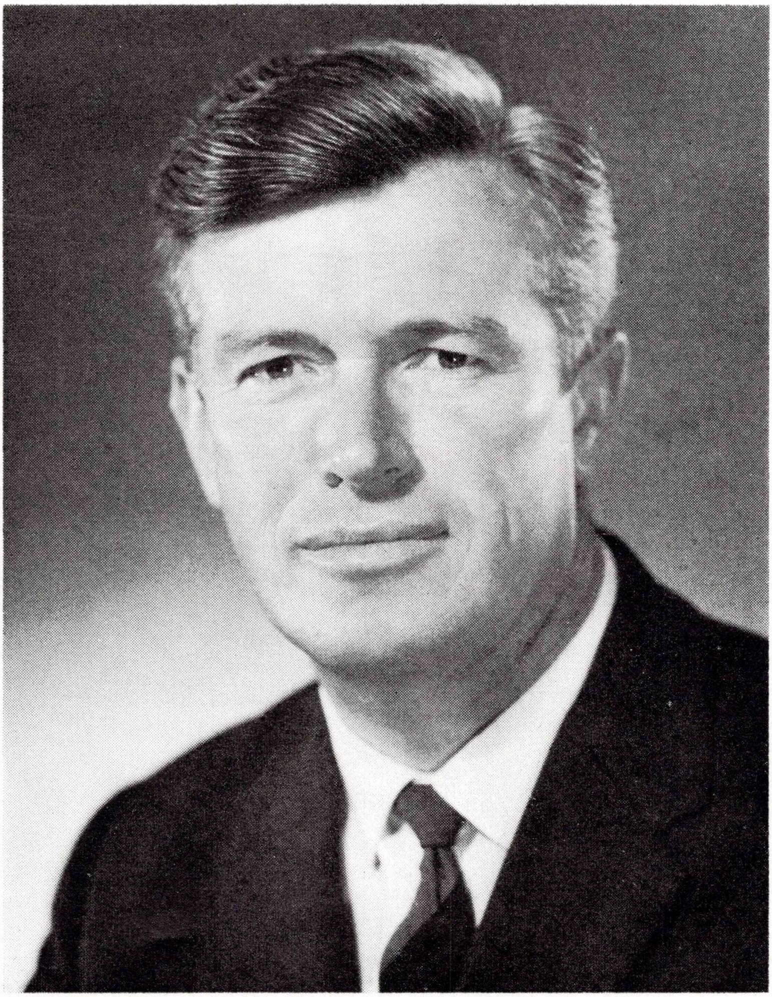
IH now make available 15 wheel tractor models and 4 agricultural crawlers

INTERNATIONAL HARVESTER COMPANY OF N.Z. LTD
Auckland, Hamilton, Rotorua, Palmerston North, Lower Hutt, Christchurch, Dunedin

McCORMICK INTERNATIONAL

INTERNATIONAL HARVESTER COMPANY OF N.Z. LTD

and Dealers throughout New Zealand



THE HONOURABLE B. E. TALBOYS,
MINISTER OF AGRICULTURE

Office of the Minister of Agriculture

WELLINGTON, N.Z.

Dear Ploughmen,

On this unique and historic occasion — the first time in which a World Ploughing Contest has been held in the Southern Hemisphere — I extend to all contestants, officials and visitors from the competing countries a cordial and warm welcome to New Zealand.

You will find that New Zealand is a true land of the plough. Our economic life has been based traditionally on agricultural and pastoral farming and we have a national pride in the vast industries that are associated with them. Much of our prosperity and, indeed, of our happiness as a people we owe to the plough and what it signifies.

Less than a century ago the plough was the implement which first brought into production much of New Zealand's virgin land. The arable land in the province of Canterbury, scene of this ploughing contest, was opened under the plough, which for us is both a symbol of our progress and a link with our past. By bringing to us the representatives of the countries of the world to compete in this international contest, it has become also our link with you.

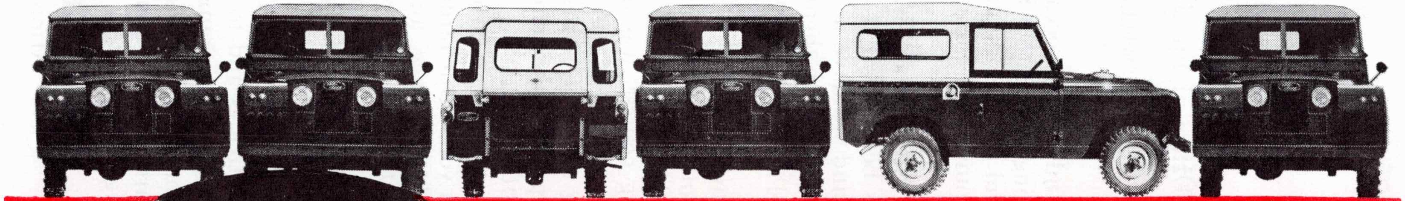
From our everyday interest in farming pursuits we have very much in common with you. Our farmers are eager to meet you, to exchange views and experience, and to witness the performances of your representatives at the contest. Above all, they will wish to meet you in the spirit of friendliness and understanding that is so much a part of the international contests of the World Ploughing Organisation.

During your stay with us I hope that you will be able to see some of our farming activities and to talk with our agricultural scientists and members of other groups associated with farming.

May you enjoy your stay with us, make many new friends and take back afterwards to your homelands the recollection of a happy and rewarding experience.

B. E. TALBOYS,
Minister of Agriculture.

Land-Rover
naturally the V.I.P. vehicle for the World Ploughing Contest



LAND-ROVER

'red carpet' treatment anywhere

Programme

FIRST DAY

Friday, 12th May, 1967

DIGGER PLOUGHING

Type of Land:

Stubble — Flat land with slight undulations.

Soil:

No stones. Silty loam. Dark greyish-brown topsoil ranges from 8 inches (20.50 cms.) to 10 inches (25.50 cms.) in depth. Clay appears at a depth of 8 inches (20.50 cms.). Unlikely to be wet and sticky in the month of May.

Clay 20 per cent to 23 per cent.
Silt 37 per cent to 50 per cent.
Sand 22 per cent to 43 per cent.
Organic matter 4.5 per cent to 4.7 per cent.

Size of plots:

2,000 square metres.
20 metres x 100 metres or 21.88 yards x 109.40 yards or 65 ft. 7.68 ins. x 328 ft. 2.40 ins.

Time Allowed:

2½ hours. (There will be a halt of 30 minutes whilst the opening splits are judged).

Furrow Size:

Minimum depth — 16.50 cms. (6½ inches).
Maximum depth — 19.00 cms. (7½ inches).
Minimum width — 25.50 cms. (10 inches).

Timetable:

08.30 Parade from Marshalling Yard to take up positions for Opening Ceremony.
09.30 Official opening of 14th World Ploughing Contest.
10.00 Parade to plots.
10.55 *Green* warning rocket — "Get Ready".
11.00 *Red* starting rocket — "Start Ploughing".
11.20 *Stop rocket* — *Red* — All competitors must dismount from tractors and wait on headland after making the Opening Split.
(Judges inspect Opening Splits from 11.20-11.50).

11.50 Second *start rocket* — Red.
13.55 *Green* warning rocket — "Five minutes to finish".
14.00 *Red* stop rocket — End of Contest on Stubble-land.
14.15 Parade from plots to Marshalling Yard.

Note:

The normal ploughing depth on this particular land is 15.25 cms. - 17.75 cms. (6 - 7 inches).

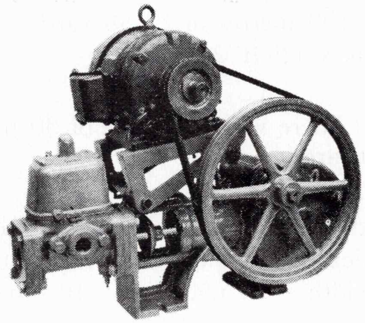
Plough:

Choice of plough at Competitor's discretion.

Opening Split:

The opening split must be completed in the first 20 minutes of the contest and must not be rolled until after having been inspected by the judges when the second red starting rocket will be fired.

For details of Queen of the Furrow Contest see blue pages.



Over 20,000 Anderson pumps in use in New Zealand, and there are ten models to choose from. Anderson reciprocating pumps are high quality products of rugged design with accurate, interchangeable components. For sales and service, contact your local reseller stockist or:—

HEAD OFFICE: P.O. Box 19543, Woolston,
Christchurch, N.Z. Telephone 39-074.

Anderson reciprocating pumps

ANDERSONS LTD
ENGINEERS
A MEMBER OF THE MASON BROS. GROUP

AP2

SECOND DAY

Saturday, 13th May, 1967

SEMI-DIGGER PLOUGHING

Type of Land:

Grassland — 2 year ley. Flat land with slight undulations.

Soil:

No stones. Silty loam. Dark greyish-brown topsoil ranges from 8 inches (20.50 cms.) to 10 inches (25.50 cms.) in depth. Clay appears at depth of 8 inches (20.50 cms.). Unlikely to be wet and sticky in the month of May.
Free draining.
Clay 20 per cent to 23 per cent.
Silt 37 per cent to 50 per cent.
Sand 22 per cent to 43 per cent.
Organic matter 4.5 per cent to 4.7 per cent.

Size of plots:

2,000 square metres.
20 metres x 100 metres or 21.88 yards x 109.40 yards or 65 ft. 7.68 ins. x 328 ft. 2.40 ins.

Time Allowed:

3 hours. (There will be a halt of 30 minutes whilst the opening splits are judged).

Furrow Size:

Minimum depth — 15.25 cms. (6 inches).
Maximum depth — 17.75 cms. (7 inches).
Minimum width — 25.50 cms. (10 inches).

Timetable:

09.30 Parade from Marshalling Yard to plots.
10.25 *Green* warning rocket — "Get ready".
10.30 *Red* starting rocket — "Start Ploughing".
10.50 *Stop rocket* — *Red* — All competitors must dismount from tractors and wait on headland after making the Opening Split.
(Judges inspect Opening Splits from 10.50-11.20).
11.20 Second *start rocket* — *Red.*
13.55 *Green* warning rocket — "Five minutes to Finish".
14.00 *Red* stop rocket — End of 14th World Ploughing Contest.
14.15 Parade from plots to Marshalling Yard.

Note:

For normal ploughing depth, choice of plough and opening split — see opposite page.

The Golden Plough

The Golden Plough is the symbol of world superiority in ploughmanship. It is a perpetual trophy awarded to the World Champion Ploughman.

The Silver Rose Bowl

The Silver Rose Bowl is a perpetual trophy awarded to the runner-up for the World Championship. It was donated to the World Ploughing Organisation by the Massey-Ferguson Organisaiion in 1956.

World Ploughing Contests

1953	Cobourg, Ontario, Canada.
1954	Killarney, Republic of Ireland.
1955	Uppsala, Sweden.
1956	Shillingford, Oxford, England.
1957	Peebles, Ohio, U.S.A.
1958	Hohenheim, Stuttgart, Germany.
1959	Armoy, Co. Antrim, Northern Ireland.
1960	Tor Mancina, Rome, Italy.
1961	Grignon, Paris, France.
1962	East Flevoland, Dronten, Netherlands.
1963	Caledon, Ontario, Canada.
1964	Fuchsenbigl, near Vienna, Austria.
1965	Ringerike, Norway.
1967	Christchurch, New Zealand.
1968	Salisbury, Rhodesia.
1969	Belgrade, Yugoslavia.
1970	Denmark.

World Champion Ploughmen

1953	James Eccles, Ontario, Canada. Runner-up: Odd Braut, Norway.
1954	Hugh B. Barr, Northern Ireland. Runner-up: Leslie Dixon, Great Britain.
1955	Hugh B. Barr, Northern Ireland. Runner-up: Ivan McLaughlin, Ontario, Canada.
1956	Hugh B. Barr, Northern Ireland. Runner-up: Arne Braut, Norway.
1957	Willem de Lint, Netherlands. Runner-up: John Mason Great Britain.
1958	T. Leslie Goodwin, Great Britain. Runner-up: W. Lawrence McMillan, Northern Ireland.
1959	W. Lawrence McMillan, Northern Ireland. Runner-up: Charles Bonney, Ontario, Canada.
1960	John A. Gwilliam, Great Britain. Runner-up: Arne Braut, Norway.
1961	William Dixon, Ontario, Canada. Runner-up: Alan Magson, New Zealand.
1962	Hans O. Sylling, Norway. Runner-up: Eero Aalto, Finland.
1963	Yngve Mansson, Sweden. Runner-up: Eero Rautiainen, Finland.
1964	Charles Keegan, Republic of Ireland. Runner-up: Eero Aalto, Finland.
1965	Eero Rautiainen, Finland. Runner-up: Fritz Krieglmeyer, Germany.

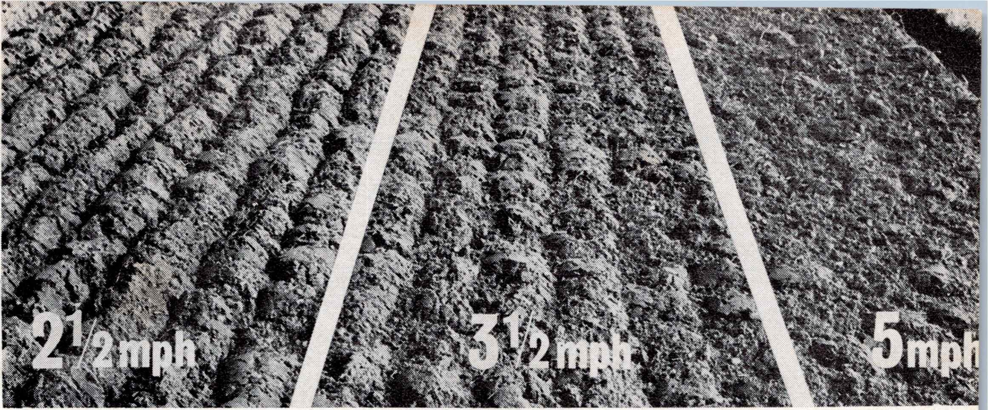
Competitors' Points Table

Country	Competitor	Points			Placing
		12/5/67	13/5/67	Total	
Australia	Leonard J. Clark	113	133	246	14 =
	Peter Herbert Anderson	129	134	263	4 =
Canada	Carl Bertram Willis	137	120	257	8 =
	Tom Hickman	96	109	203	25
Czechoslovakia	Alexandr Abosi				
Denmark	Egon Lorenz Johansen	118	134	252	11
	Jens Peter Kristensen	132	132	264	3
Finland	Paavo Tuominen	139	131	270	1 =
	Osmo Hillebrandt	135	128	263	4 =
Germany	Hans Claus Jess				
	Josef Schmid	136	121	257	8 =
East Germany	Alfred Lehmann				
	Klaus Zimmermann				
Great Britain	Philip P. Skyrme	120	141	261	6 =
	Raymond Goodwin	101	148	249	12 =
Hungary	Jozsef Dupcsak	103	111	214	23

Netherlands	Klaas Eelman	118	127	245	16
	Gerrit Zwaal	112	127	239	19
New Zealand	Stewart M. Allison	102	147	249	12 =
	Ian B. Blair	110	136	246	14 =
Northern Ireland	Thomas James Barr	115	125	240	18
	John Alexander Barr	94	132	226	21
Norway	Gunnar Hersleth	121	122	243	17
	Anders Naess	127	130	257	8 =
Republic of Ireland	James Murphy	97	138	235 ~~226~~	20
Rhodesia	Sidney Alexander Moorcroft	103	121	224	22
Sweden	Sture Johnsson	128	133	261	6 =
	Gunnar Johansson	135	135	270	1 =
U.S.A.	Earl Muir				
	Raymond Poos	70	99	169	26

Public Information Service at Atlantic Stand

RANSOMES
PLOUGHS
8 times winners of World Ploughing Contest



Competitors using ploughs made by Ransomes Sims & Jefferies of Ipswich, England, will be:

EIRE
James Murphy
GREAT BRITAIN
Philip Skyrme and R. Goodwin

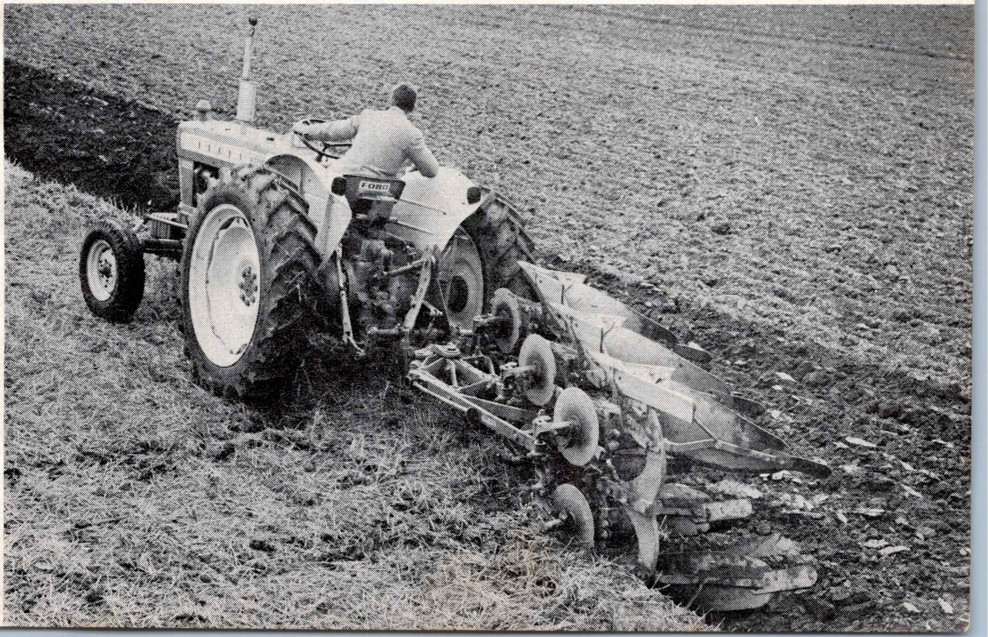
NEW ZEALAND
Ian Blair
NORTHERN IRELAND
T. J. Barr and Jack Barr

These competitors will all be using Ransomes TS86 mounted plough. A further competitor, Tom Hickman of Canada, will be using a Ransomes Litrac trailed plough.

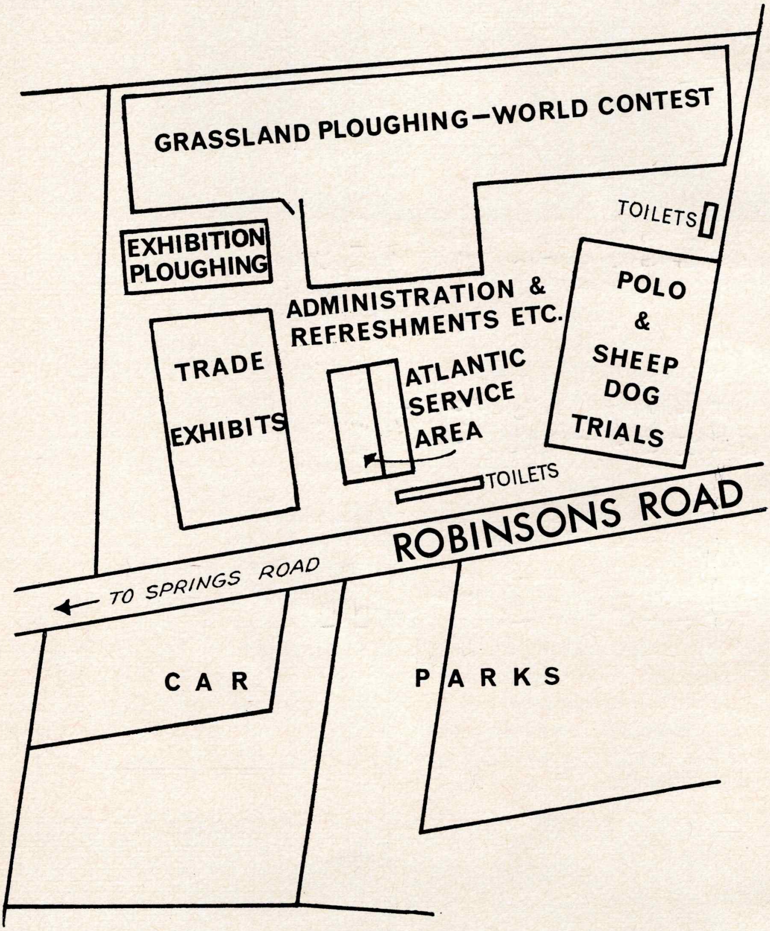
Among recent developments by Ransomes is the introduction of their high speed TCN bodies. These are multi-purpose bodies designed to work at depths from 6-10 inches at speeds from 2½-5 m.p.h.

At lower speeds the TCN bodies will stand up furrows for weathering in the style of general purpose bodies. At faster speeds semi-broken and fully-broken furrows can be ploughed which require only a minimum of cultivation before drilling.

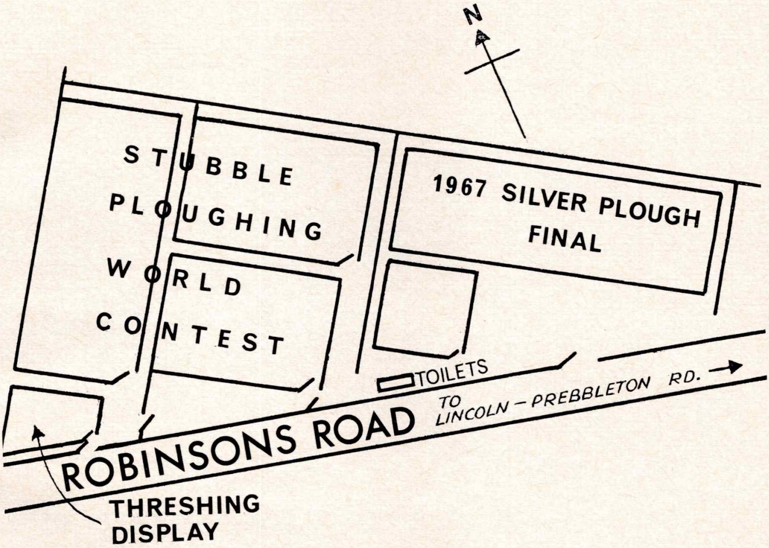
Another development by Ransomes was the pioneering of the modern mounted reversible plough in Britain, and today they sell more reversible ploughs in Britain than all the other reversible plough manufacturers together.

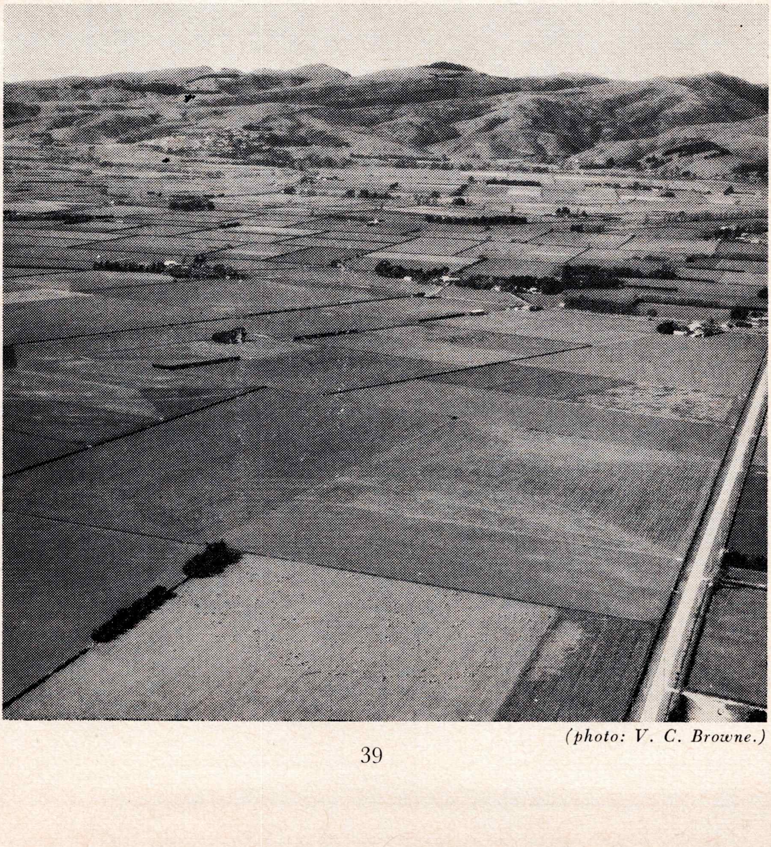


CONTEST AREA LAYOUT PLAN



An aerial view of the contest area looking east.

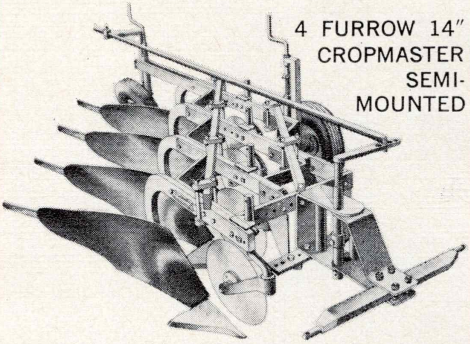




(photo: V. C. Browne.)

CLOUGH PLOUGHS

In New Zealand more Clough ploughs are manufactured and sold than any other make, and we also offer the widest range of models to meet specific needs, and varying ground conditions. Illustrated opposite is the Six Furrow Stylemaster semi-mounted, but one of the many ruggedly constructed models available. Clough Ploughs are built to suit conditions anywhere in the world — light, heavy, dry, rocky, sandy, or swampy soils, and are available from single to six furrows with 10″, 12″, 14″, or 16″ furrow widths either 3pt. mounted or 2pt. semi-mounted.

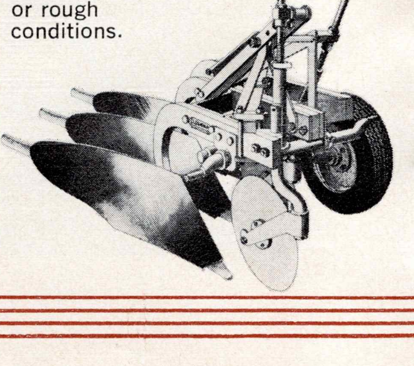


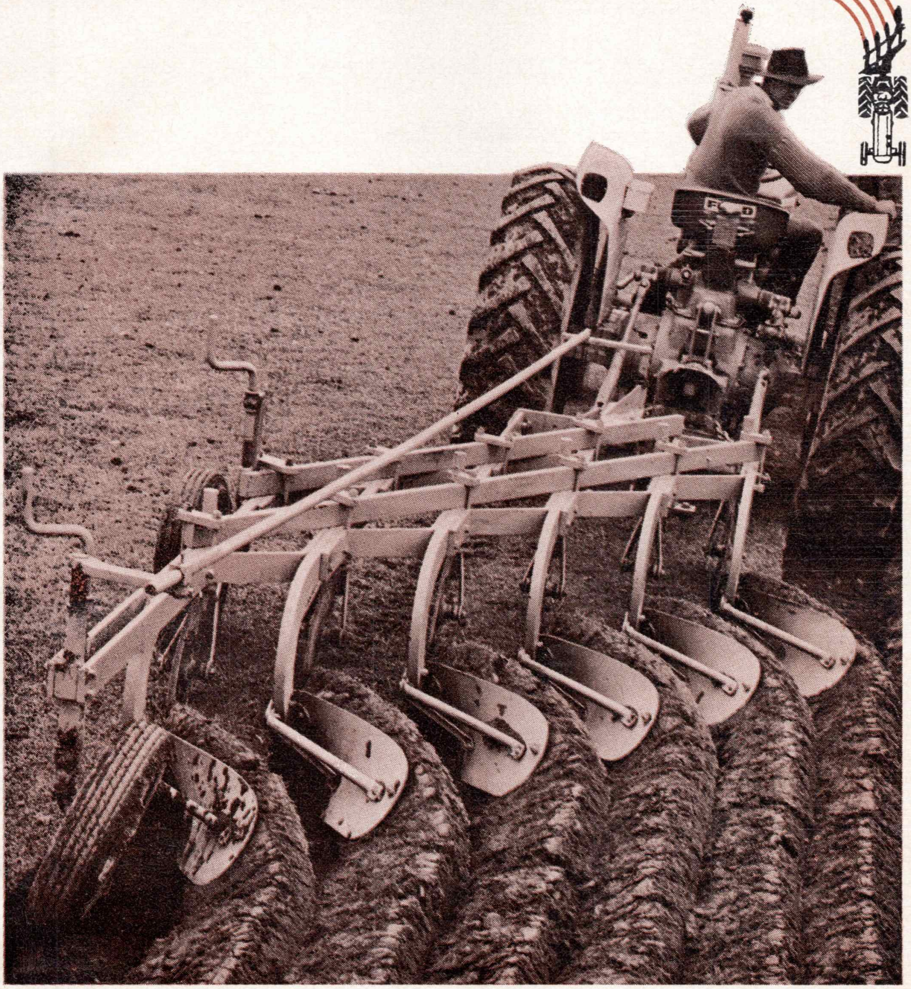
4 FURROW 14″
CROPMASTER
SEMI-MOUNTED

From 2–6 furrows in 14″ and 16″ furrow widths. An all purpose plough for rough or general work—shallow or deep furrows.

3 FURROW 14″ RUAPUNA

A heavy duty model from 1–6 furrows in 10″ to 16″ furrow sizes. Designed for rugged boulder country or rough conditions.





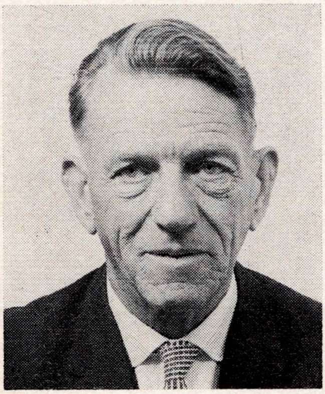
We have illustrated only three of the basic models in the wide range of Clough Ploughs. It is important to remember that any of the models shown are available in one to six furrows, either 3pt mounted or 2pt semi-mounted. This also applies to the wide range of swamp ploughs not illustrated. In addition, Clough Ploughs can be custom built to suit your requirements.

Manufactured by:

W. R. CLOUGH & SONS LTD.

TIMARU AND SHANNON, NEW ZEALAND

New Zealand's Largest Plough Manufacturer Had Humble Beginnings



Two years before the outbreak of the Second World War when New Zealand was still in the process of shaking off the devastating effects of the depression, Mr W. R. Clough decided to go into business for himself. At Shannon, a small farming settlement, 20 miles south of Palmerston North, he bought a two-man farrier and blacksmith business. Prior to this, Bill Clough had been building and setting ploughs on farms all over New Zealand for twenty years. The accumulated knowledge gained from this past experience gave him the "know-how" to design at his Shannon blacksmith workshop, the revolutionary range of massive Clough Swamp Ploughs, which made it possible to conquer large areas of rugged flax swamp, bush, and timber country throughout the North Island — areas previously considered useless wasteland.

It was in 1945 that Mr Clough sold the patent rights of the massive plough and embarked on the first stage of the company's expansion.

During the next few years the business grew steadily and in 1949 the company started its first real production run by manufacturing plough bottom units, which are in keen demand today.

It was in the 1950's that Mr Clough decided to manufacture complete ploughs on a full scale production basis. Much thought went into the design of these ploughs, and styling and development has kept pace with the changing agricultural demands.

It was also during the 1950's that Mr Clough took his two sons Messrs K. R. and G. V. Clough into the business. Both of them share an important part in the company's administration today.

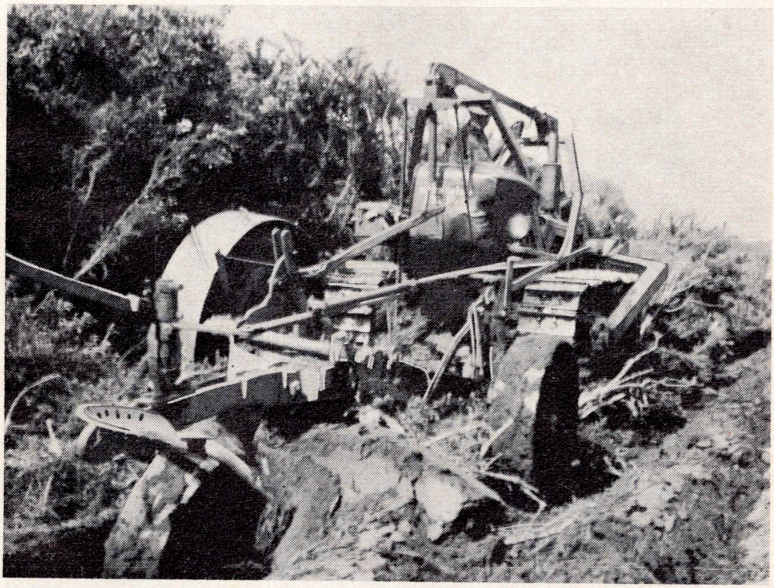
From the small corrugated iron blacksmith's shop in Shannon has emerged the largest plough manufacturing concern in

New Zealand. Clough Ploughs are sold throughout the country, and W. R. Clough and Sons Ltd. now have extensive and up-to-date manufacturing premises in Shannon, and a modern Assembly Plant in Timaru.

Apart from enjoying the bulk of the New Zealand plough market, Clough Ploughs have also met with considerable export success, notably in England, Australia, Okinawa, Zambia, the Cook Islands and Fiji, and the Company is investigating the possibility of developing a much larger share of export business throughout the world.

Among other achievements, W. R. Clough and Sons Ltd. have recently gained another New Zealand first with th introduction of large-scale manufacture of semi-mounted ploughs -- a safer, easier-to-tow implement which has met with great enthusiasm from farmers throughout the country.

With the economy in New Zealand based upon a highly efficient agricultural industry, W. R. Clough and Sons Ltd. look forward confidently to the expansion of new primary produce markets, the development of new farming concepts, and to the benefits that the farming industry as a whole will derive from the growing world-demand for agricultural produce.



Early photograph of "Massive" Swamp Plough gas welded and hand forged by Mr W. R. Clough turning in 12ft high gorse ploughing a furrow 18in deep 3ft 6in wide.

PULLING THE PLOUGH..

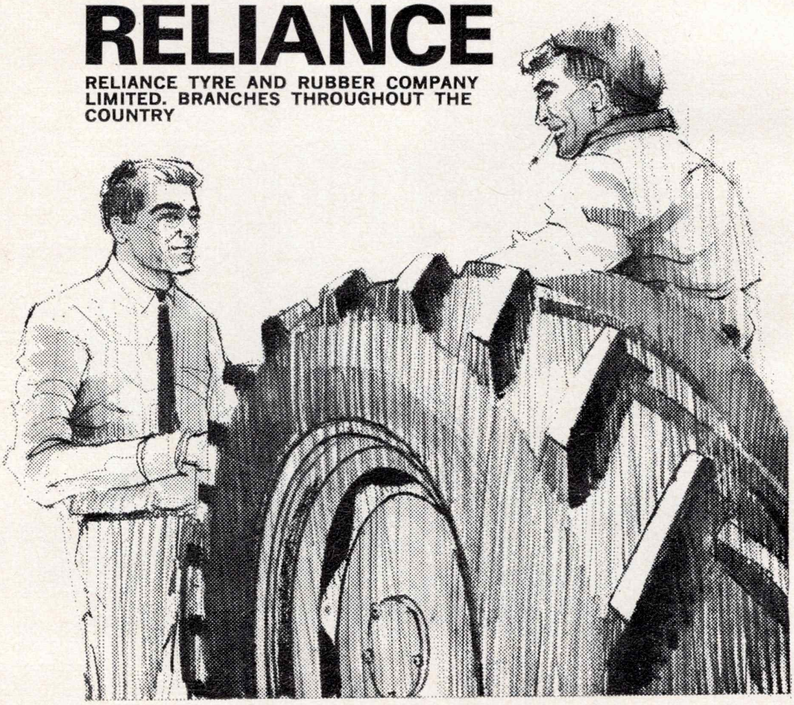
RELIANCE

Another specialised Tyre Service. Tractor Tyre re-lugging by Reliance. Reliance provide a complete tyre service to farmers, including free pick-up-and-delivery service for tractor tyre relugging, truck and car retreads as well as a full range of new tyres. Remember, Reliance Car Retreads are the only retreads with the reserve rib.

Call the Reliance Tyre Service in your area — they're ready to help right round the clock.

RELIANCE

RELIANCE TYRE AND RUBBER COMPANY LIMITED. BRANCHES THROUGHOUT THE COUNTRY



Farming in New Zealand

New Zealand, host country for the World Ploughing Contest in May, 1967, is largely a mountainous country, less than one quarter of its land surface being below the 650 feet contour.

On either side of the mountain ranges there are only relatively small areas of flat land, mainly coastal strips and river valleys.

CLIMATE

Several climatic features favour New Zealand's high production from the grassland farming responsible for most of the country's wealth. Generally, the rainfall is adequate and reliable, and sunshine is abundant. Winters are mild enough for sheep and cattle to remain in the open, and in the North Island pasture growth continues throughout the winter.

FARMING SYSTEMS

Generally, the farming systems used in different regions are dictated by topography, climate and fertility. These regions range from the extensive tussock and native grass areas of the Lower Southern Alps, suited to one only specialised type of sheep farming, to the richer, more limited areas of level land adaptable to almost any type of farming. Roughly, the main systems of farming are:

On Tussock and Native Grasses

The area used for this type of farming is all of high altitude and can generally be classed as mountainous, though it includes some easier country.

Summers are dry and winters cold, and heavy snow sometimes causes severe losses of lambs. For many years overstocking and severe rabbit infestation badly depleted carrying capacity, but recent rabbit destruction, the advent of topdressing, especially aerial application, and the correction of trace element deficiencies have markedly improved this country. Build-up of stock numbers must, however, be slow.

Most of the land is held on long-term lease from the State.

On Surface-Sown Hills

Most farming of this type is in the North Island on land which was originally cleared of bush by burning. Grass and clover seed was then scattered on the cold ash.

The class of stock carried depends on the type of sward and on how much reversion there has been to fern and second growth. Where conditions are harder, fewer breeding ewes and more hoggets and wethers may be carried, with more cattle to trample the unwanted growth.

The easier hill-country farms can fatten some lambs and do not need so many cattle. The comparatively small amount of land of this type in the South Island carries sheep almost exclusively. This farming is considerably important, as it provides most of the store sheep for fattening on better land. In the North Island about three sheep per acre may be carried plus some beef cattle. These areas, therefore, produce considerable meat and wool, not only from fat stock, but indirectly as the store lambs and store cattle needed by farmers rearing fat lambs and fattening cattle on the better, intensively-farmed land.

Intensive Grassland Farming

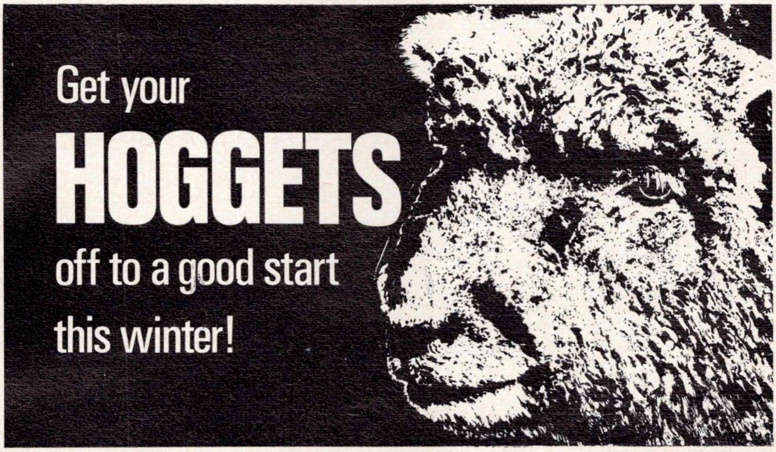
This is confined mainly to flat or rolling land of high natural or intensively-fertilized fertility where the climate so favours pasture growth that there is enough grass (either as pasture or as hay and silage) to maintain up to six or even more ewes per acre, or about one cow to every 1½ acres, throughout the year. The best land may carry even more stock.

Grass is the main feed, though supplementary crops are often used both for winter feed and to enable more grass to be saved in autumn for late winter and early spring. Surplus passture growth in spring and early summer, especially on dairy farms, is conserved as hay and silage.

Pastures are predominantly ryegrass and white clover, supported by grasses such as cocksfoot, paspalum, and timothy, and by red clover, and, in areas of lower rainfall, by subterranean clover. Perennial ryegrass benefits more from association with clovers than does any of the other common grasses, and one of the most important factors in the management of perennial ryegrass-dominant pasture is the encouragement of clovers.

Clovers, indeed, have been described as the backbone of New Zealand's high-producing pastures, and white clover is unquestionably one of the most valuable pasture plants in the country. With suitable treatment it will thrive on a wide range of soils. The large quantity of attractive feed it produces is palatable to all classes of stock and may be used for hay and silage as well as grazing.

Its value is greatly increased because of its efficiency in the utilisation of phosphate and its very important role in the chain of processes which make atmospheric nitrogen available to plants.



clean out roundworms & lungworm

Autumn drenching with 'Nilverm' is most effective against all stages of roundworms and lungworm — acts as a safeguard against worm-produced scour — assists profitable weight gains and wool growth.

BROAD SPECTRUM — 'Nilverm' not only removes virtually ALL mature and immature roundworms, but also shows *exceptional activity against all stages of lungworm,* a parasite increasingly being recognised throughout New Zealand as a significant cause of ill-thrift.

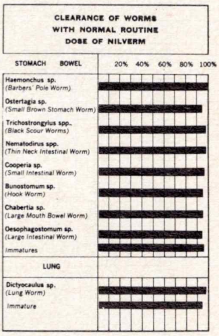
RAPID RESPONSE — 'Nilverm' immediately arrests roundworm-induced scouring and suppresses coughing caused by lungworm. Resultant weight gains are impressive even by today's high standards of drench activity.

EASY TO USE — 'Nilverm' is a true solution: no mixing or shaking necessary. No clogging of guns. 'Nilverm' is non-corrosive and is non-staining.

LOW VOLUME DOSAGE — 'Nilverm's' small doses are suitable for all types of guns and readily accepted by the sheep—you save drenching time and effort.

SAFE — 'Nilverm' is safe to use and handle. Sheep tolerate several times the required dose. 'Nilverm' may be given to young lambs and pregnant ewes.

GOOD VALUE — 'Nilverm' offers savings over other anthelmintics, and weight and wool gains recover its cost many times over.



BOOST PRODUCTION—WATCH YOUR HOGGETS THRIVE

ICI

NILVERM

TETRAMISOLE DRENCH ®

ICI
ICI research
benefits
you

broadest spectrum drench ever!

Available now from all Veterinarians and Stock & Station Agents

1st

first choice since 1930

The Waikari Lime Company is proud to have served the interests of the farming community since 1930! With the accent on *service*—it will continue to play a vital role in the future development and prosperity of the land!

FOR GREATER PRODUCTIVITY AND EASE OF SPREADING SPECIFY TOP QUALITY:—

"waikari lime"

High Analysis — Highly Soluble — Fine Textured • Electric Screening Ensure Consistent Grading • Prompt Delivery Assured! • Orders Dispatched by Road and Rail!

WAIKARI LIME COMPANY LTD

Works: WAIKARI. Orders: Managers Residence: 16S Waikari R.M.D.
Secretaries: Claude W. Evans & Co. P.O. Box 555, Christchurch. T & G Building, Hereford St.

Once they are well established, pastures are not broken up for many years, their high production being maintained largely by regular topdressing with super-phosphate, lime, and in some areas potash. Adequate nitrogen is provided, as already described, by vigorous clover growth.

Arable Farming

Arable farming is confined almost entirely to the South Island, especially to the Canterbury Plains and parts of Otago, which have climates and soils most suitable for grain growing. Summers are fairly warm, with about 25 to 30 inches of rain a year, and the land is nearly all ploughable and of reasonable quality. On farms on this type of country a fair proportion of income is from cereals, grass seed, potatoes, and other cash crops.

However, farms used entirely for cropping are very few, most of the revenue coming from farms raising fat lambs, wool, and a few cattle. On heavier land in these arable areas dairy farming may be carried on.

Management of these properties is somewhat similar to that in the United Kingdom or Europe. Supplementary crops are used both for winter feed for ewes and for fattening lambs, and pastures may be broken up every five years, though longer lasting pasture strains have enabled pastures to be left down for longer periods.

Fodder crops include swedes, turnips, green feed cereals, and rape, and the cash crops are wheat, oats, barley, peas, potatoes and linseed. A typical crop rotation might be grass-rape-wheat-green crop-grass.

FERTILIZERS

In 1965 fertilizer consumption in New Zealand was 1,777,000 tons, almost 90 per cent of which was used for topdressing pastures.

In comparatively few areas of the country can pastures and crops be grown satisfactorily without phosphate fertilizers; hence phosphates, especially superphosphate and its derivatives, are by far the most important fertilizer, accounting for 82.4 per cent of total sales.

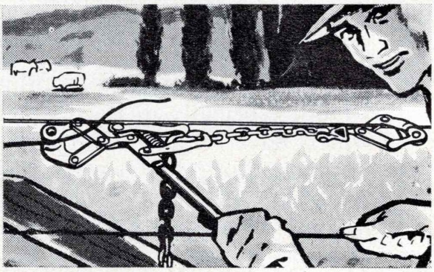
However, the use of potash is increasing rapidly, a trend which is likely to continue.

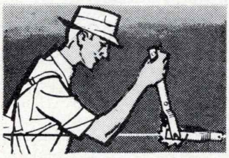
The growing of clovers and lucerne appears to be adequate for maintaining nitrogen requirements, and artificial nitrogenous

proved on New Zealand farms for over 50 years!

HAYES *farm aids*

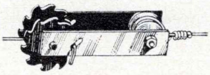
HAYES CHAIN GRAB WIRE STRAINER Smooth grip action does not damage the wire! Will strain slack wires, broken wires, barbed wires, Cyclone wires, sheep netting or telegraph wires in the centre or at the post. Fitted with 4ft chain—longer chains available. Catalogue number 300.



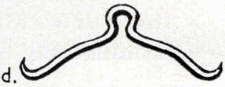


HAYES PERMANENT WIRE STRAINER Right for for any type of plain wire fence. Suitable for wire and batten and wire and standard fences. The roomy reel holds up to 8ft of No. 8 wire. Operated with a non-slip, positive action, ratchet handle for greater pulling power, this wire strainer is unbeatable. Catalogue number 302. Permanent Wire Strainer Tightening Handle Cat. No. 303.

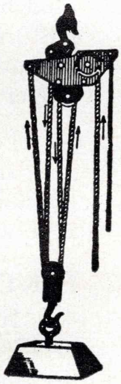
HAYES INSULATED STRAINER These strainers operate exactly the same as a permanent wire strainer — but are specially equipped for electric fence use. On particularly long strains, one unit can be attached at each end of the wires. Operated by the same handle as the permanent wire strainer. Catalogue number 426.



HAYES ALL-METAL SHEEP GAMBREL
Designed to stay hooked. It cannot slip off the hook accidentally, even when only one side is being used. Catalogue No. 317.



500LB LIFT



HAYES SELF-LOCKING BLOCKS
Locks automatically in any position and can be raised or lowered to any extent. A light pull on the trip rope releases the lock. Excellent for all classes of lifts up to 500lbs. Heavy pressed steel sides with solid cast pulleys. Fitted with 60ft rope. Catalogue number 315.

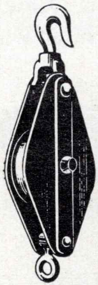
HAYES LIGHT BLOCKS
Available with 2″ pulley and 40ft rope. Suitable for sheep and pigs—to lift up to 300lbs. Catalogue number 313.

HAYES PULLEY BLOCKS—for all lifting jobs.

2″ single	pulley	block	Catalogue	Number	422S
2″ double	,,	,,	,,	,,	422D
3″ single	,,	,,	,,	,,	423S
3″ double	,,	,,	,,	,,	423D
3″ triple	,,	,,	,,	,,	423T
4″ double	,,	,,	,,	,,	424D
4″ triple	,,	,,	,,	,,	424T
4″ single	,,	,,	,,	,,	424S

(illustrated) 422/S (illustrated) 423/S

NEW ZEALAND MADE



423/S

422/S

TRADE ENQUIRIES WELCOME
PLEASE WRITE:
Messrs Ernest Hayes (N.Z.) Ltd.,
P.O. Box 42, Templeton,
CHRISTCHURCH 4.
NEW ZEALAND.

HAYES *farm aids*

fertilizers, in any considerable quantity, may not be needed for some time yet.

AERIAL TOPDRESSING

About two-thirds of the land occupied in New Zealand is too steep for cultivation, and until comparatively recently the only method of getting fertilizers on to this land was by hand, which was both inefficient and costly.

Aerial topdressing, first tested in 1939, interrupted by the war, and commenced on a commercial scale in about 1950, has had a tremendous impact on this situation. In addition to extension of fertilizer applications on to the hilly and hitherto inaccessible country, its importance in the general fertilizer picture is highlighted by the tremendous increase in the area treated aerially within five years: In 1960, of 8,500,000 acres topdressed, 3,900,000 acres (46 per cent) was done from the air; in 1965, of 11,000,000 acres topdressed, no fewer than 8,145,000 acres (74 per cent) was treated from the air.

IMPACT OF AGRICULTURAL DEVELOPMENT CONFERENCE

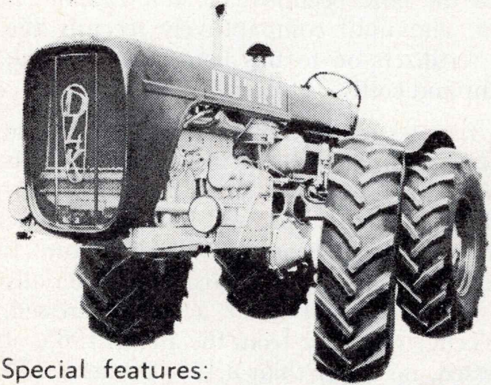
The Agricultural Development Conference, set up by the Government in 1963, has already evoked an impressive response from farmers in terms of increased livestock numbers. In 1964 it was decided that the expected increase in livestock numbers of 2.5 per cent a year would have to be raised to 3.5 per cent a year to attain the equivalent of 31,000,000 extra sheep required by 1972. However, already since 1964 livestock numbers have risen by the equivalent of 13,000,000 sheep. Though some people have credited favourable seasons as largely responsible for the increase, never before has there been such a remarkable rise.

The conference set up the Agricultural Production Council to implement its decisions. The Council works through district Agricultural Advisory Committees, and aims to aid farmers by defining the factors limiting production in different areas and then overcoming them.

One example is ensuring that every farmer and his adviser fully knows the tax concessions and incentives available, and the terms and availability of finance.

Farm loans from the State Advances Corporation, for instance, have risen from £7,000,000 a few years ago to over £21,000,000 in each of the last two years. A similar amount will be available this year. This and the finance available from other State sources make an annual total of almost £28,000,000.

Don't miss seeing the demonstration at the World Ploughing Contest of the



HUNGARIAN

built

four-wheel drive

DUTRA D4K-B

90 H.P.

tractors

Special features:

- **exceptionally high drawbar pull**
  on all soils—wet clay and sand soils, marshlands, steep hillsides. Second-to-none weight distribution: front 60%, rear 40%.
- **high performance at low expense**
  tests held in Britain proved that the D4K is one of the most economical propositions.
- **outstanding stability**
  no danger of overturning even when carrying 5-6 furrow ploughs mounted on the hydraulic three point linkage.
- **non parallel versatility**
  equally suitable for heavy duty performance on arable lands and road works, terracing, drainage, in forestry, etc.

Members of the Dutra family:

D4K B	with 90 HP	6 cylinder engine	
UE 50	50	4 ,,	
UE 28	28	2 ,,	our contest tractor

Exported by

»TECHNOIMPEX«

Hungarian Machine Industries Foreign Trade Company,
Budapest, V.Dorottya u.6 Budapest 62. P.O.B. 183.
Telephone 180-830, 184-950. Cables: Technoimpex.
New Zealand Agents: Drummond Industries Ltd., Lumsden.

The Maori People

New Zealand is a land where harmony is being achieved between two races of different colour and very different cultural backgrounds. The indigenous people of New Zealand are Polynesian Maoris. They comprise 7.8 per cent of the population.

They are a vigorous, adaptable, and rapidly increasing minority group. The Maori birthrate, 46.41 per thousand, is almost double that of the pakeha (non-Maori).

The size of the Maori population declined rapidly during the nineteenth century. This resulted from the introduction of firearms into tribal wars, wars between Government and Maori forces, and from the introduction of diseases to which the Maori had little or no resistance.

The decline was arrested by the end of the nineteenth century and then numbers began to grow at an increasing rate. In 70 years New Zealand's Maori population has increased by 450 per cent.

The Maori people have not been submerged by the tide of European settlement. They are retaining their racial identity, language, and culture to a marked degree, have equal rights in all respects and are given some preferential treatment, particularly in education and trade-training opportunities to help them master more quickly the skills of the twentieth century. While they retain their own racial and cultural identity they do, nevertheless, form a homogeneous society with European New Zealanders, especially in formal education, sport, politics, and in a wide spread of vocations.

More than 60 per cent of Maoris are under 21, compared with 40 per cent of non-Maori New Zealanders.

To ensure that in addition to full legal equality, which the Maori people have long enjoyed, they also have full material equality. Government policy is to concentrate on improving Maori housing, education and employment.

The Maori Affairs Department runs a special finance scheme to assist Maori families to buy or build modern homes. This is additional to all other housing schemes for which Maoris qualify equally with non-Maoris.

The average educational attainment of Maoris does not yet equal the national average, because of environmental, linguistic and cultural factors — Maori and non-Maori children do not differ in intelligence — indeed, there have been many brilliant Maori scholars, some with international reputations.

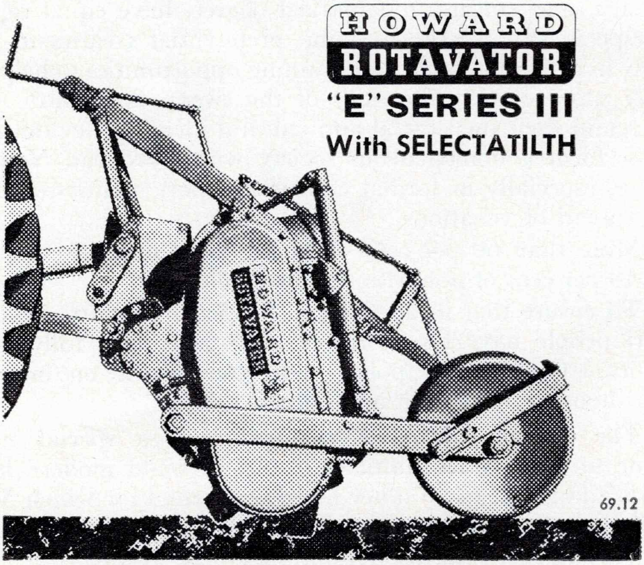
Although at present relatively few Maoris enter the professions there are some in nearly all, and a few earning international distinction. The number in professional life is steadily growing.

New Zealand's general racial harmony is attributable to two basic factors — the adaptability of the Maori people and the Maori welfare policy of successive governments.

NEW "E" SERIES III ROTAVATOR
designed to match today's more powerful tractors

A **new** Rotavator designed for the exacting requirements **of** farmers and contractors, featuring **new** rubber cushion drive shock absorber, **new** clutch control, **improved** depth control and **stronger construction all round.** Suitable for all standard 3 point linkage tractors of 30-60 b.h.p. So versatile! Depth of cut is adjustable to 8" maximum. Rear shield fully adjustable to control soil flow. "Selectatilth" gearbox gives 4 different rotor speeds for fine or cloddy finish. **See us now for full details on all models.**

HOWARD
ROTAVATOR
"E" SERIES III
With SELECTATILTH



69.12

New Zealand Distributors:

HOWARD ROTAVATOR CO. LTD.
P.O. Box 30-233, Lower Hutt

Ploughing in New Zealand

Ploughing in New Zealand has, in common with most other farming activities, undergone wide changes with the advent and the increasing use of the modern farm tractor as a source of primary power. The increased and ready power of this tractor, together with such refinements as hydraulic three-point linkage and a very wide range of selected speeds have been potent factors in the trends of modern ploughing in New Zealand.

Multi-furrowed trailed ploughs are used where large areas are annually cultivated for crops such as grain and regular stock fodder, while the hydraulic three-point linkage-controlled ploughs appear to be increasing in popularity for general farm cultivation. The increasing use of this type of plough is no doubt due to its easy manoeverability and increased mobility. As a group they are generally referred to as mounted ploughs.

Since the termination of World War II, mouldboard patterns have gradually changed and the once widely used lea type of mouldboard now has strong competition from the general-purpose and semi-digger mouldboards. Single-furrow ploughs are not used to any great extent, except for special works such as swamp ploughing or for land development.

Higher speeds are now also generally accepted as sound practice, and tractor drawn or mounted ploughs can do in hours what was previously done in days.

However, whilst the modern farm tractor has certainly influenced ploughing in New Zealand over the decade, it has also helped to foster to some extent some of the competitors of conventional ploughing. These competitors are mainly the chisel plough, the giant disc, and the disc plough. All these methods of primary cultivation have their places in New Zealand agriculture, but it is generally accepted that the mouldboard plough will be the No. 1 method of primary cultivation for many years yet.

METROPOLITAN MILK (Ch'ch.) LTD.

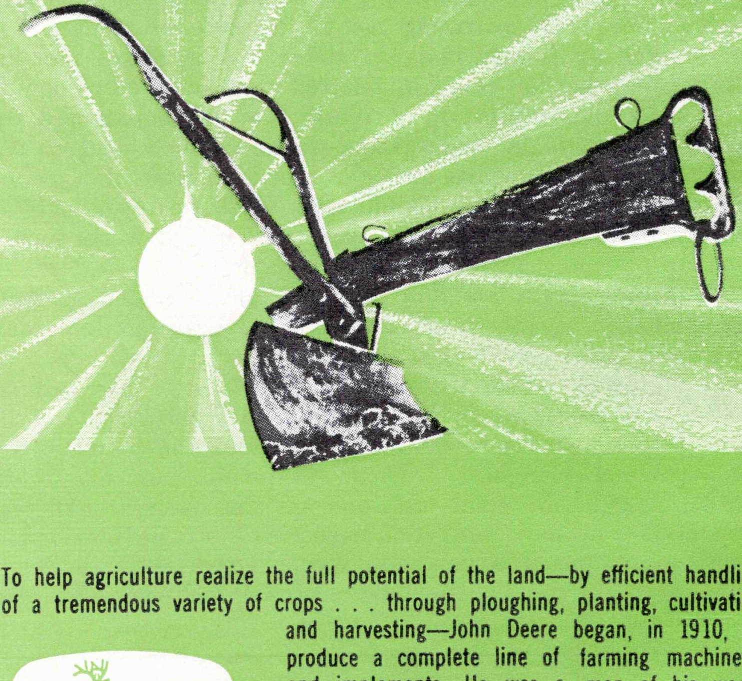
Extend a warm welcome

to visiting ploughmen

TOWN MILK PRODUCERS AND PROCESSORS

92 Russley Road Upper Riccarton Christchurch

In 1837 John Deere made the first self-scouring steel plough

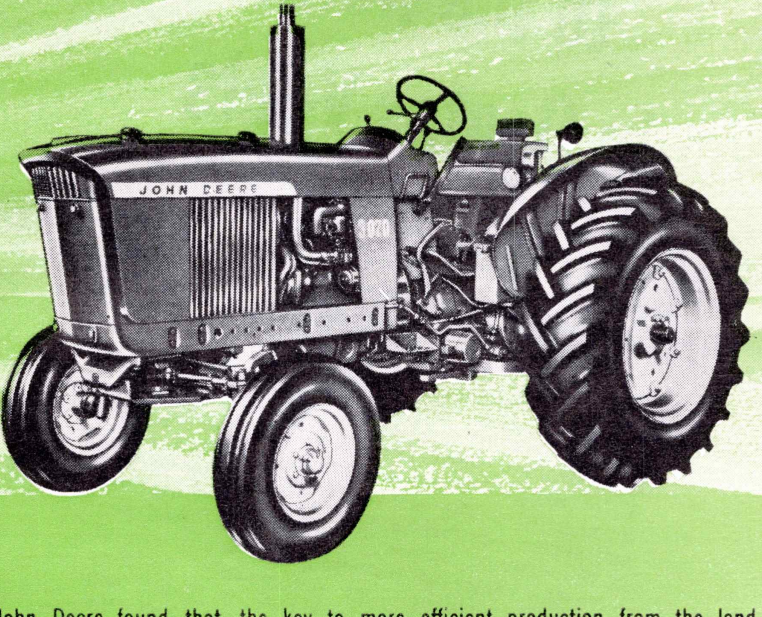


To help agriculture realize the full potential of the land—by efficient handling of a tremendous variety of crops . . . through ploughing, planting, cultivating and harvesting—John Deere began, in 1910, to produce a complete line of farming machinery and implements. He was a man of his word, John Deere. "I shall never," he said, "put my name on a product that does not have in it the best that is in me."
And that still holds good today.

JOHN DEERE

JOHN DEERE

look what they're doing now



John Deere found that the key to more efficient production from the land lies in using more power through fewer machines. In using the power more profitably. Making it work harder and faster. In making it easier and less tiring for a man to handle. Above all, using the power at the time when it does most good. Among the many different machines that Deere make today are tractors and tools for every crop, every soil, every climate—each of them backed by John Deere's world wide reputation.
For the man on the land, John Deere.

JOHN DEERE

GOUGH, GOUGH & HAMER LTD

BRANCHES THROUGHOUT NEW ZEALAND ★

Now you can jet from New Zealand to the world in Qantas V-Jets

QANTAS has opened up the BIG JET era for New Zealand world travellers. Join the QANTAS V-Jet and you've joined the mighty QANTAS V-Jet Service — to the world. You fly in the luxury and superb comfort of V-Jets — fastest aircraft in round-world service — all the way! And you have the choice of travelling along any one of the four spectacular jet routes from Sydney: through Honolulu and the U.S.A., or Tahiti and Mexico, or Singapore and Bangkok and the Orient. Only QANTAS flies all these routes to London and around the world. And only QANTAS offers you the speed and big-jet comfort of V-Jets all the way. Ask your Travel Agent, AIR NEW ZEALAND or QANTAS about QANTAS' V-Jet services from New Zealand to the world.

QANTAS

FIRST AIRLINE TO FLY THE BIG JETS FROM NEW ZEALAND TO THE WORLD

QANTAS EMPIRE AIRWAYS LIMITED, with AIR INDIA, B.O.A.C., S.A.A. and AIR NEW ZEALAND.
AIR NEW ZEALAND, QANTAS' General Sales Agents in New Zealand.

AK 2287

We Fly Through The Air

by Alfred Hall.

Most overseas visitors to the 14th World Ploughing Contest regard New Zealand and Australia as being on the other side of the world. Probably none of them would even have seen this part of the world except for the fact that this year's World Ploughing Contest is being held in New Zealand. In the course of the past fifteen years, however, the World Ploughing Contest has become an international attraction and reason for bringing people together at whatever place in the world it is held. Every year the Contest shows that nowhere is too far from home for people to travel.

Air travel has made the world seem smaller, and the sharing of pleasures and experiences between people from all over the world, as they do at the World Ploughing Contest, shrinks the continents and countries into one world — a small world in which we are all friends and neighbours.

Thanks to air transport people can now come together on the other side of the world in a matter of hours. In fact you feel you are almost there the moment you step aboard either a Qantas or an Air New Zealand airliner.

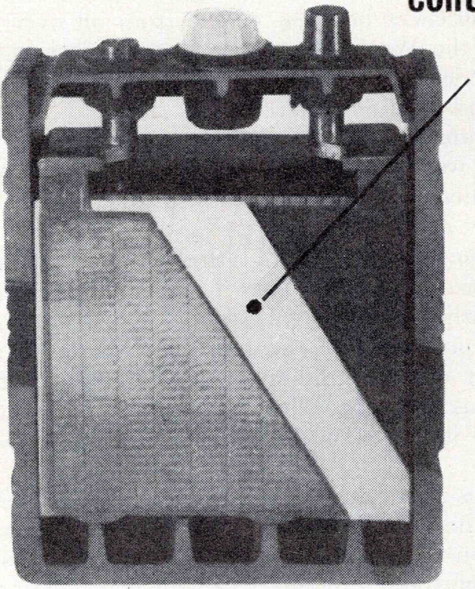
Since most of the ploughmen and their supporters have travelled from countries in Europe they have been passengers with both of these airlines which reach across the world from the South Pacific. For most of them, too, their journey is not "there and back" but right around the world. It began when they boarded a Qantas jet aircraft for that is the moment you feel you are stepping into the sunshine of Australia and New Zealand.

The cabin decor is at once restful to the eye and even blends with the "quiet" neatness of the uniforms worn by the stewards and stewardesses. You have a sense of lightness and airiness as you settle into the comfortable upholstery of your seat and at the same time become aware of the subdued sound of tunefully soothing music. As you look around, wondering where the loudspeakers are placed, your gaze settles upon the murals.

They are coloured sketches of Australian flowers. There is the Flannel Flower, Black Wattle, Queensland Silver Wattle, Sweet-scented Wattle, Finger Violet, Dwarf Apple, Sydney Golden Wattle — many wattles, all different but botanically related. Fortunately, the artist has been thoughtful enough to write the name beside each so that, if your memory is good, you can recognise Tall Yellow Eye and Slender Rice Flower and the rest, when you reach your destination.

Your Exide diesel starting story starts with a tough hard rubber case to resist vibration damage...

continues with—



- ⁎ Double separation of glass wool and 'Porvic' PVC for additional armouring of the positive plates.
- ⁎ Extra plates for heftier starting performance within the same physical dimensions as standard batteries.
- ⁎ Thicker, taller plates for longer life.
- ⁎ Heavy duty connectors, their lower resistance gives extra power at the starter motor.

EXIDE 'DS' HEAVY DUTY DIESEL STARTING BATTERIES

Full information about the batteries built for diesel service — extremely efficient Exide 'DS' is available at your nearest garage. Call today!

Exide
Batteries of
New Zealand
Limited,
Lower Hutt.

Exide

But you haven't time to study all the murals before a smiling stewardess with a typically homely Australian accent has handed you a plastic envelope. In it are words of welcome from the aircraft crew and flight information. Also, most intriging of all, a pair of mini-slippers. Pull off your shoes and ease your feet into them for a restful journey. If you are a farmer, or a wearer of rubber boots, they'll be useful when you get back home, too.

Between New York and San Francisco the flight crosses the Great Lakes of North America. To the right lies Lake Ontario and beyond is the province of Ontario itself where the first ever World Ploughing Contest was held in 1953 and where the eleventh in the series was held in 1963.

Soon, over the mid-west of America the city of Des Moines lies somewhere below surrounded by the arable lands of Iowa where Herb Plambeck founded the U.S.A. National Ploughing Match. You can see the countryside laid out in great square sections with roads running straight from east to west and north to south at right angles to each other.

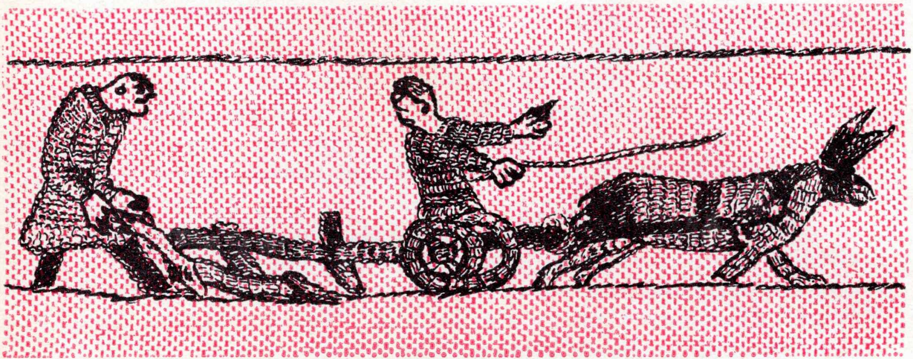
At San Francisco there is a stop-over where you can take a quick look at some of the Californian farmland. California has the biggest agricultural output of all the states of the U.S.A. Of all U.S.A. agricultural production no less than 24 per cent is grown in sunny California where also is located the world's biggest beef cattle lot and the biggest herd of dairy cattle.

Vegetables, fruits and cereals grow abundantly in the very fertile South Californian Valley which is 400 miles long and about 50 miles wide.

The countryside is the most interesting for farmfolk but San Francisco itself demands exploring. There are extensive views over the city taking in the Golden Gate Bridge to the north and the San Francisco Bridge to the south. The best viewpoints are from the rooftop observation windows on some of the skycraper hotels. You need good lungs to walk the steep streets of the city. Even the street cars have chains at road surface level to help them up the hills.

Here, too, is the headquarters of the world's largest Bank—the Bank of America which was founded by the father of Mrs Giannini Hoffman who is a co-chairman of the World Ploughing Organisation Trust.

San Francisco Airport has the clearest speaking announcers and the most distinct announcements of flight arrivals and departures of any airport I know. They speak slowly and deliberately and then repeat. No passenger should ever miss a flight from San Francisco.



Detail from the Bayeux Tapestry of ploughing in 11th century.

THE PLOUGH
was not always
the sophisticated tool
of today

. . . so, too, have fertilizers progressed. Ammo-Phos, high analysis, pelletized fertilizers are a result of science applied to the need for greater productivity. Ammo-Phos is the twentieth century way to fertilize the soil.

AMMO-PHOS

CROTHALL CHEMICALS LTD
P.O. Box 1673, Christchurch. Telephone 68-729
Sole NZ agents for Ammo-Phos fertilizer
made only by Olin.

4885 C

QANTAS Boeing 707 Jet Airliner
at Christchurch International Airport.

Sometime, somewhere over the earth you may fly through turbulent air. Then the order is switched on "Fasten seat belt". At the same time the voice of a considerate captain advises you to do so. In his leisurely Australian accent he apologies for the bumps "back along the road" and since the turbulence has caught up with us "it might be better to fasten our seat belts until we soon get out of it". Then he tells us what the weather is like at Sydney or Auckland; tells us in a friendly, conversational way which, but for the fact that you can't answer him back, makes you feel he's sitting right there in the seat beside you.

Fortified by good meals, friendly attention and restful sleep you cross the world and eventually arrive. You are tired because 7 o'clock represents a day beginning here but a day ending at home, with which your body is still in time. So the landing formalities are an irritation but once you are in you are welcome and made to feel at home.

New Zealand lies in the corresponding latitude in the Southern Hemisphere to California and Spain in the north. There are two main Islands, the North and South Islands, each about 500 miles long. Closest neighbours are Australia and Antarctica, both more than 1000 miles away and the nearest point in America is 6000 miles away.

This is the other side of the world to which ploughmen from many nations have come to plough the same field together.

IWD

Our research and development team is constantly seeking new products for greater control of weeds & pests

The search for new products and new methods of application is never ending. Here, at Ivon Watkins-Dow a full-time team of research and development people are working for you. Products of tomorrow are being tested today. Every new product is subjected to comprehensive field trials under various conditions and when it is ready to solve a particular weed or pest problem, the knowledge gained and resultant product are made available to our network of IWD Distributors.

WEEDONE

IVON WATKINS-DOW LTD

stantox

BOX 144, NEW PLYMOUTH.

1 197

The Research Committee of the World Ploughing Organisation

by Professor Dr. Kalman Lammel.

Thanks to the influence of the World Ploughing Contests held since 1953 many countries have adopted ploughing matches and soon noticed that a very extensive, immediate and efficacious improvement in the quality of cultivation work could be achieved. Parallel with the improvement of the quality of soil cultivation we achieve higher crop yields.

By further extending the promotion of ploughing matches the World Ploughing Organisation plays an important role in the struggle for a better food supply for the peoples of the world.

The introduction of ploughing matches to some parts of the world raises many questions. One of them is the influence of climate on soil cultivation.

The majority of the states in early membership of the World Ploughing Organisation — like New Zealand — are situated in a humid, temperate, climate. The ploughing rules of the World Ploughing Contests are based, therefore, on styles of ploughing most suitable for their climatic conditions. The climate of countries joining later differ increasingly from those of the founder states. The difference is evident in the higher temperature and the uneven distribution of rainfall. In these countries assessment of quality of ploughing differs from those of the founder states. In extreme cases it may even be doubtful whether ploughing is the best method of soil cultivation or if some other method is to be preferred.

The big question is: what are the best appropriate rules for ploughing and soil cultivation under different climatic conditions?

To find answers to this problem the Governing Board of the World Ploughing Organisation set up the WPO Research Committee at a meeting in Norway in October 1965. The purpose of the Committee is to determine the rules of good ploughing and the most suitable types of plough/soil tillage equipment for use in soils in warm, hot and dry climatic regions.

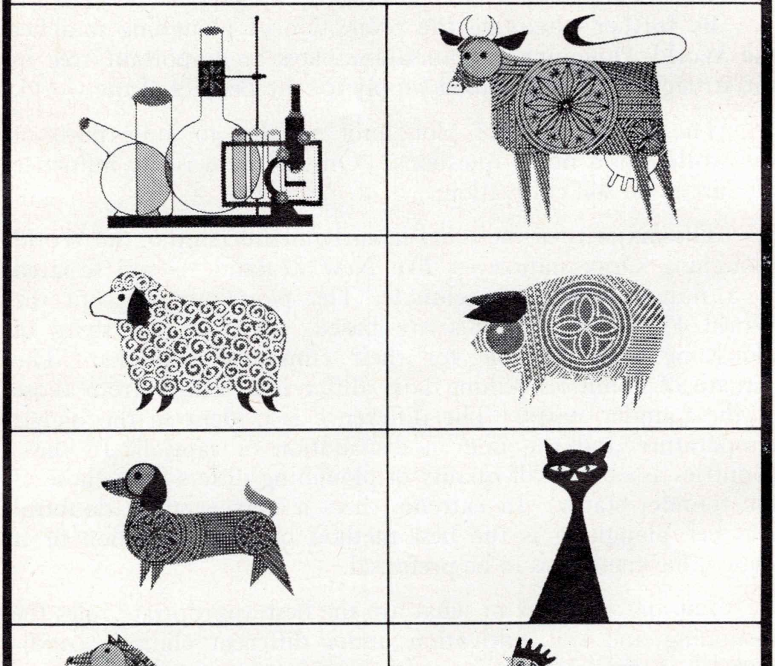
research and the farmer

The New Zealand farmer is a recognised world leader in agricultural practice. He is justly proud of his reputation for using the modern techniques and developing his own ideas to improve production.

With today's highly specialised, intensive farming practices, the need to safeguard the health of flock and herd is of major importance. In this respect, the man on the land is not alone. Continual research and development in the field of veterinary science plays a vital part in safeguarding the health of animals — whether pets or for production.

In this field, the Tasman Vaccine Laboratory is the largest employer of scientific personnel apart from the Government: TVL Research and Technical staff are continually working on new developments to control diseases of livestock.

THE NAME MEANS WHAT IT SAYS . . . **T V L** and animal health



TASMAN VACCINE LABORATORY LIMITED
WHAKATIKI STREET UPPER HUTT NEW ZEALAND

Since its foundation the Research Committee has compiled and elaborated a great deal of literature on tillage problems in the afore-mentioned regions, drawn up a reference list of experts dealing with these questions and held a meeting during the Royal Agricultural Show in England in July 1966.

The participants at the meeting discussed the principles under which experiments should be carried out in agricultural development areas situated in warm, hot and dry climatic conditions. They also considered the procedural tasks connected with the project. They determined a concrete programme of forth coming activities for the Committee.

Within the framework of the programme to commence in four or five countries one member of the Governing Board of the WPO together with one ploughman, possessing outstanding achievements at any of the World Ploughing Contests, will undertake to demonstrate the operation of various tractor-operated tillage tools to display their most effective and efficient use. Simultaneously the demonstration area will also be used for research purposes and with assistance from local research institutes the effect of different methods of tillage on crop results will be investigated through a convenient number of repetitions.

It is envisaged to demonstrate in this programme the following implements:

Mouldboard plough
Disc plough
Cultivator/Chisel plough
Rotary cultivator
Rotary seeder in connection with chemical handling
Various combinations of implements.

The purpose of these demonstrations is instructive, educative and scientific. At the same time local ploughmen will be invited to participate in a competition in which to put into practice their own interpretations of the WPO demonstrators' techniques and by this means establish standards of quality work and efficient methods of working.

From this incentive we hope local ploughing matches will develop, culminating in a national or state final from which the best operators will go forward to the World Ploughing Contests.

A History of the Development of Ploughing in New Zealand

The correct preparation of land for the most beneficial pasture production and future pasture development is of vital interest to stock farmers and sheep farmers.

Careful well-planned ploughing of the land is among the first steps in soil cultivation.

Early settlers in New Zealand brought with them the cultivation implements which were then in common use in Great Britain — single-furrow swing ploughs, harrows and cultivators. Bullocks were first used for draught, but were soon replaced by horses. For the first 30 years after colonization cultivation work was not carried out on a very large scale, for pastoral farming, based on the natural tussock grasslands and on pastures, the seed of which was sown in the ashes of forest and scrub fires, was the main farming industry.

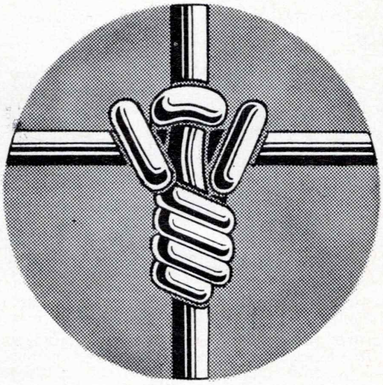
Cereal production began to assume importance in the late seventies and early eighties, and the introduction of labour-saving machinery was a major factor in allowing both wheat and oats to be produced cheaply for export. The first important labour-saving implement introduced was a Scottish double-furrow plough. It embodied an entirely new principle of carrying the plough on three wheels (one wheel on the land and two bevelled wheels in the furrow) and dispensed with both sole- and side-plates. The absence of sole- and side-plates reduced friction and lightened draught. One man with three horses could turn over as much land with this plough as two men with four horses had previously done. Local manufacture of these ploughs became an important industry in the eighties and nineties and arable mixed farming development centred around 3- or 4-horse teams drawing a double-furrow plough and 6-horse teams drawing a 3-furrow riding plough. Both units were so efficient in tillage work and economy of labour that they withstood tractor competition until quite recently, when the advent of the modern farm tractor and tillage implements gave mechanical power units a decided advantage over horses.

The 4-horse team (2-furrow plough) was capable of cropping 75 to 100 acres of heavy land or 100 to 150 acres of medium to light land in a year, while the 6-horse team (3-furrow plough) could crop 150 to 200 acres of medium land with the usual crop rotations of cereals and fodder crops, which allow fairly even distribution of team work throughout the year. With the adoption of the tractor there was no radical change in cropping or cultivation methods. Implements were increased somewhat in size and adapted for tractor use; The 2-furrow plough was normally replaced with a 3-furrow tractor plough and the 3-furrow riding plough with a 4-furrow implement. Cultivation work was speeded up, greater flexibility was possible in crop rotations, and the tedious early morning and evening work of grooming and feeding horses was eliminated.

The rapid rise in the use of the tractor in recent years is illustrated in the following table.

Number of Agricultural Tractors

Year	North Island	South Island	N.Z. Total
1920	186	138	325
1930	1,197	2,694	3,891
1940	5,256	6,022	11,278
1950	19,185	15,498	34,683
1960	47,318	31,097	78,415
1965	51,799	34,628	86,427



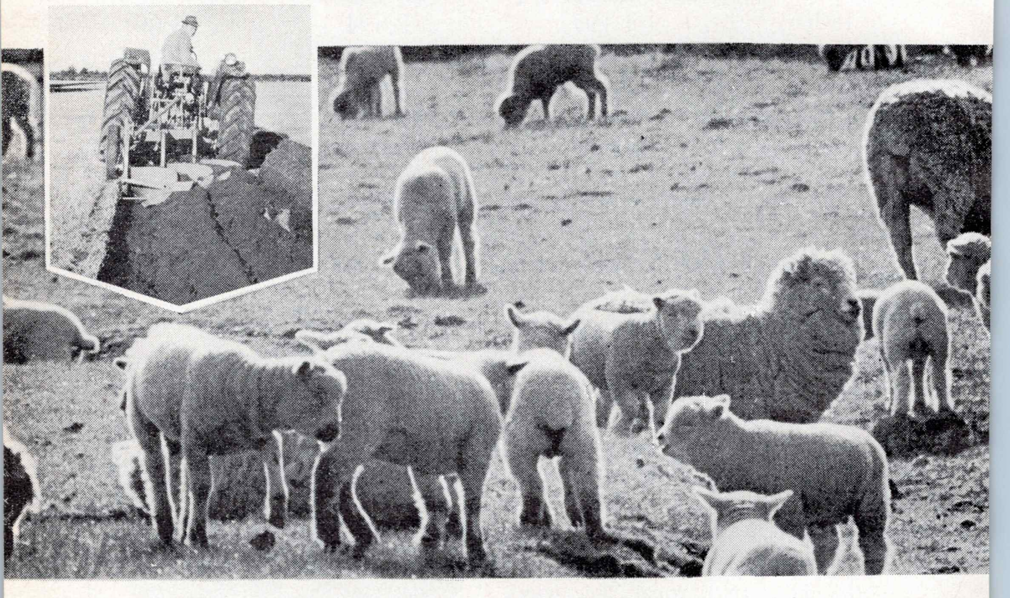
Aim to save with Cyclone
Superweight
boundary
fencing

Cyclone 'Tightlock' is your best investment. Exclusive knots: one-piece vertical stay wires. This is the heaviest prefabricated boundary fence you can buy. Strongest. Cheapest. There's a specification of Cyclone fencing to suit your every need! Guaranteed and backed by Cyclone.

GENUINE
Cyclone

CFM

better cultivation leads to better stock



The correct preparation of land for the most beneficial pasture production and future pasture development is of vital interest to stock farmers.

The farmer knows his livestock's welfare depends on his feed crops — and these, first and foremost, depend on correctly balanced soil. Careful , well-planned ploughing of the land is among the first steps in correct soil cultivation. It allows free access to oxygen to break down organic material present in the soil, so providing a nitrogen source for the plants.

This is only one factor but it serves to illustrate — the more efficiently a farmer ploughs, the greater his crop yield. The greater his yield, the more feed for his animals. Accomplished ploughmanship pays big dividends in the long run.

THE CANTERBURY FROZEN MEAT COMPANY LIMITED

drafting ✱ processing ✱ marketing

Works: Belfast, Fairfield, Pareora. Head Office: 172 Cashel Street, Christchurch.
N.Z. Cable Address Frostbound Phone 71-609.

Canterbury Lamb

Canterbury, the location for the 14th World Ploughing Contest, is probably best known overseas, and particularly in the United Kingdom, for "Canterbury Lamb". For the production of tender and sweet meat, the rapidly grown lambs that come off the plains and hills of Canterbury are among the best in the world.

According to figures prepared by the New Zealand Department of Statistics, at the end of June, 1964, the Canterbury statistical area had more sheep than any other similar area in the country — almost nine million or 17.1 per cent. of the national flock.

Sheep farming is Canterbury's major industry. On the plains and downlands a very successful pattern of farming has been developed in which sheep production and cropping are practised side by side. Pastures are sown with grasses and clovers. Artificial fertiliser in the form of superphosphate stimulates the growth and is a key to increased production. Also at no cost to the farmer, the clovers fix nitrogen and further help promote grass growth. The sheep flocks themselves contribute to the maintenance of and build-up of soil fertility.

In order to take advantage of the build-up in fertility and to ensure that the herbage does not get too rich for the livestock, the land is ploughed and sown with crops of grain at regular intervals. Consequently, Canterbury is not only one of the country's principal sheep areas but also its main cropping district. In 1963-64, Canterbury grew 64.5 per cent. of the total wheat acreage in New Zealand, half of the acreage in oats and 70 per cent. of that in barley. After a cropping rotation, including cereal and fodder crops, the land is once more returned to pasture and to sheep production, and so the cycle goes on.

Because of its topography, Canterbury has a greater diversity of sheep types than most parts of the country. On the plains, where farms are mainly from about 300 to 500 acres in area, run mainly Romney ewes which are mated with the Southdown ram to produce the quick maturing, fast growing lamb that has made New Zealand's reputation in the United Kingdom for superlative lamb production. Many of the lambs are ready for slaughter in only two to three months. Some of these farmers breed their own replacement stock whilst others produce entirely for the fat lamb market and buy in replacement ewes to take the place of those grown too old.

Mostly Corriedale and halfbred ewes are run on the hills. The Corriedale is a breed developed in New Zealand which has

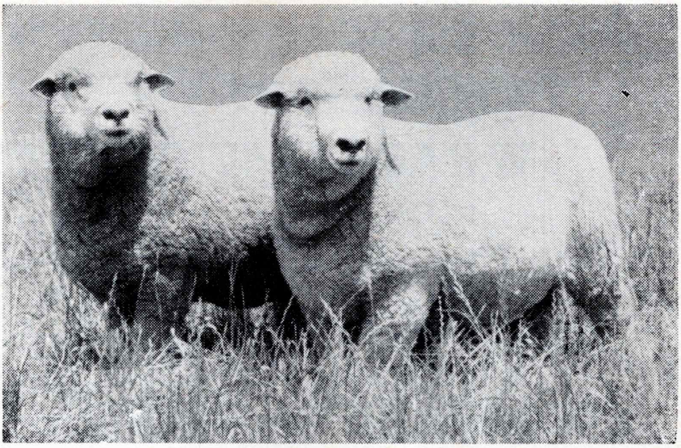
For friendly Assurance advice call the expert from Dominion Life

The Dominion Life man will help you make the most of your tax deductible Assurance

Dominion Life

Assurance Office of New Zealand Limited

Member of the Commercial Union Group of Companies



A fine example of Corriedale sheep.

now spread to many parts of the world and has become one of the world's main sheep breeds. It is a dual purpose animal excellent for both meat and wool production.

The mountains of the great Southern Alps form a majestic backdrop to the Canterbury plains where, in summer, sheep graze up to about 7,000 feet. These are the hardy, wool bearing Merinos. In this highland country there are snow risks in winter.

Handling Canterbury's lamb production is a big business. There are seven freezing works strategically placed throughout the province where lambs are killed and dressed on a moving chain system by a series of butchers each performing particular tasks as the lambs move along. Hygiene standards in these works have been raised to extremely high levels to meet the requirements of the fastidious buyers of New Zealand meat. After slaughter the lamb carcasses are stored for shipment.

In the 1965-66 season the lamb kill in the province of Canterbury exceeded 4.5 million head, each of an average dressed carcass weight of about 30lbs. (14 Kilo). Most are shipped to the United Kingdom but increasing numbers are also going to the United States of America. In the same 1965-66 season the kill of sheep, mainly ewes, was more than 750,000 and this was below normal. The meat from these older sheep has, in recent years, found a ready market in Japan.

Sheep thrive well in the Canterbury climate. Although cold in the winter, the weather is often hot and dry across the plains after depositing its moisture on the western side of the Alps.

McCONACHY
WHARF SERVICES LTD.

Shipping Agents
Stevedores, Custom Agents and
Wharf Cartage Specialists

Contractors and manufacturing engineers

P.O. Box 254, Timaru, New Zealand.

Licensed custom agents

Managing Director: P. D. McConachy,
2 Sutter Street, Timaru, N.Z. Ph. 5604.

A. & N.Z. Bank Chambers, Beswick Street,
Timaru, N.Z.
P.O. Box 254. Ph. 4199, Extension 86.

Manufacturers of:

Trucks
Hub Trucks
Fork-Lifts and Cranes
Articulated Trucks
(extendable from 30ft. to 48ft.)

Overseas orders promptly attended to

Agents for: **H. J. R. SOMERVILLE AND SONS LTD.**

NOTHING SUCCEEDS LIKE SUCCESS

That about sums up the eight-years history of McConachy Wharf Services Ltd., Timaru.

They began work in 1959 with two shunting trucks. Today they claim to be able to handle cargo more cheaply than anyone else in New Zealand.

Their secret is that they have developed and built machinery specially adapted to the jobs they do.

The firm gave its first real notice that a new force was abroad in the wharf transport field in 1961 when it tendered for a Timaru Harbour Board job of transporting timber and piles. The tender was so far below its competitors that doubts were voiced before the No. 9 Transport Licensing Authority about whether it could do the job at that figure.

But it did — because of a straddle truck it had built itself.

And so it has been from then. Now the firm carts all cargo from ship side to transit sheds at Timaru and manufactures cargo handling machinery for other ports.

TIMARU

the Central Port of the South Island

★ Centrally situated to service the South Island.

★ Main highway, north and south, 400 yards from the Port.

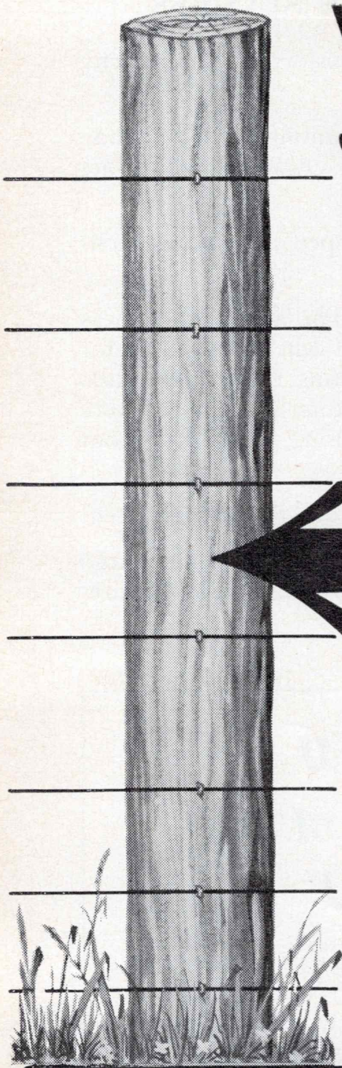
★ Wharves flushdecked — full-scale railway line facilities— road access to wharves for all types of road transport.

★ Excellent access to Port from main highways and railway marshalling yards.

★ Areas of land immediately adjacent to berths available for packing and storing of containers.

★ No congestion — weather delays to a minimum — average rainfall over past 50 years — 23 inches.

★ All-weather mechanical loading and unloading equipment.



WHY Boliden PRESSURE TREATED POSTS ARE *Your* BEST BUY

THE 100% WORKING PRESERVATIVE PROTECTS THIS POST

NO INACTIVE OR SOLUBLE BYPRODUCTS

no attraction to stock

no more corrosion than with untreated posts.

STRONG & DURABLE

ALL ACTIVE QUALITY
GIVES
PROVEN PERFORMANCE
AT
LOW COST

Boliden pressure treated **POSTS**

***BOLIDEN* TREATMENT PLANTS ARE LOCATED AS FOLLOWS:**

● Whangarei Timber Co. Ltd.	Whangarei
● West Timber Treatments	Helensville
● New Zealand Forest Service, Waipa Sawmill	Rotorua
● Ellis & Burnand Ltd.	Putaruru
● Carter Merchants (Ohakune) Ltd.	Ohakune
● Permilltreat Timbers Ltd.	Hastings
● Timber & Mouldings	Ormondville
● Mackie Bros.	Onga Onga
● Wood Enterprises Ltd.	Wanganui
● C. E. Daniell Ltd.	Masterton
● H. Baigent & Sons Ltd.	Nelson
● F. L. Anderson Ltd.	Blenheim
● Wisemans Timber Preservations Ltd.	Christchurch
● Hallidays Timber Ltd.	Ashburton
● McCallum & Co. Ltd.	Oamaru
● Barrow Box Co. Ltd.	Tapanui
● Lumsden Sawmilling Co.	Lumsden
● Marshall & Sons Ltd.	Winton

B5

Soil — The World's Most Precious Asset

By Frank H. Mendell [*]

The soil has been identified as Man's most precious asset since the beginning of history. Throughout the ancient world the feeling of kinship to soil was expressed in various bread and corn religions. The Egyptians called themselves "Sons of the Black Earth". For many years the most popular religious cult of ancient Greece worshipped Demeter, goddess of the Earth. Plowing was vaguely regarded as an act bordering upon impiety, to be atoned by religious observance and the offering of sacrifices to the divinities of the Earth. [†] Every major religion has symbolized in some form the genetic cycle of the soil. The basic tenet of these primitive religions has motivated today's soil conservation movement, namely, that the processes which strip the Earth of protective cover threaten men with extinction.

The plowman in his tillage and care of the soil has a tremendous responsibility to the people of the world. The world's presently used arable land is surprisingly small in area. The total is estimated to be about 1.4 billion hectares, or 3.5 billion acres. This is less than 1.2 acres for each man, woman and child on the earth!

The Great Creator provided North America, and particularly the midwestern Corn Belt area of the United States, with a very fertile, highly productive soil. The Corn Belt area is often referred to as the Bread Basket of the World and the soils are capable of sustaining high per acre yields with proper management and needed erosion control.

Dr. Louis Thompson, Associate Dean of Agriculture, Iowa State University, Ames, Iowa, offers some sobering predictions in connection with the world's soil resources and its capacity to produce food. Dr. Thompson notes that our world population has grown faster than our world food supply has grown since 1958. This is particularly true in the centres of greatest population. He estimates that to meet the food needs of the world in 1975, enough additional food must be produced to feed 700 million people — more than live in India or in the entire western hemisphere today. This means increasing world food production more than 20 per cent above the 1964 level — a real challenge to the proper use and protection of our land.

[*] State Conservationist, U.S. Soil Conservation Service, Des Moines, Iowa.

[†] Man and the Soil.

Zetor
5511

A top tractor in every way: technically, in performance, in economy.

Sole exporter: MOTOKOV, Praha, Czechoslovakia. Enquiries to: MOTOR LINES LTD. P.O. Box 236. Phone 80-009 Palmerston North.

Man's responsibility for the proper use and treatment of our soil was expressed by the late Hugh Bennett, Chief of the Soil Conservation Service of the U.S. Department of Agriculture: "Use each acre of land according to its capability and treat it according to its needs".

History, research and experience, tell us that it takes 1,000 years to make an inch of soil. But without needed erosion control practices we can lose an inch or more of our precious top soil in a single rain storm.

The downfall of a number of countries, dating back to the ancient civilizations of western Asia and the Roman Empire, was due directly or indirectly to inattention to the care of the soil. These wasted civilizations serve as a grim reminder of the importance of the proper use, conservation, and protection of our soil to meet present and future needs for food, fibre and shelter for our people.

Many famous early American statesmen called to the attention of the American people the importance of conservation of our soil. Among these statesmen were George Washington, Thomas Jefferson, Theodore Roosevelt, and Patrick Henry. "He is the greatest patriot who controls the most gullies", said Patrick Henry.

Despite these early warnings, national concern about soil erosion in the United States did not develop until the 1930's. Under the leadership of Hugh Bennett, two very important steps were taken:

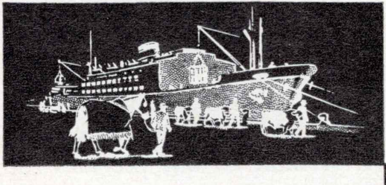
1. The creation of the Soil Conservation Service in the U.S. Department of Agriculture in April 1935. The Service was created by an Act of the U.S. Congress as the conservation arm of the U.S. Department of Agriculture.
2. Acts of each State Legislature to authorize the creation of Soil Conservation Districts. The first of these Acts was passed in North Carolina in 1937. The Acts authorized farmers and ranchers to organize land units of State government to plan and carry out needed soil and water conservation measures. These local units of government elect districts governing bodies with specific responsibilities for preparing a programme and for setting up policies, guides, and procedures to carry out the very important job of conserving our precious soil.

Most of the State Acts listed the following among the responsibilities of soil conservation districts:

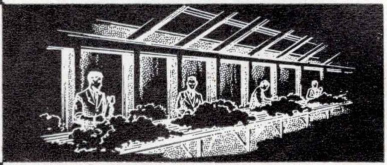
To provide for the restoration and conservation of the soil and water resources of the State,

To control and prevent soil erosion and prevent floodwater

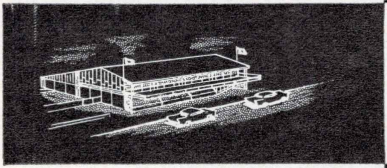
Serving our country's needs...



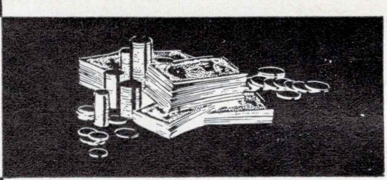
Sale of livestock — stud and bloodstock



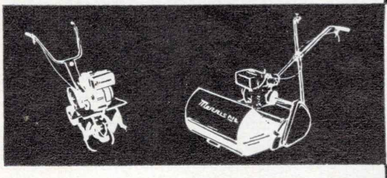
Storage, display and sale of wool



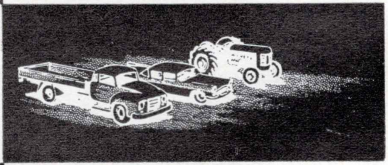
Supplies of farm merchandise



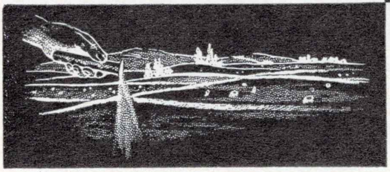
Farm finance



Manufacturing engineers



Supply and servicing of motor vehicles



Supplies of agricultural seeds and fertilisers

WSBr.566

Wright Stephenson

& CO. LIMITED

The New Zealand owned and controlled company with more than 150 sales outlets throughout New Zealand.

and sediment damages, and thereby to preserve natural resources, prevent floods, prevent impairment of dams and reservoirs,

Assist and maintain the navigability of rivers and harbours, preserve wildlife, protect the tax base, protect public lands, and promote the health, safety and public welfare of the people of the State.

Soil Conservation District governing bodies in all States have accepted these responsibilities and the challenge to protect and conserve our soil, and much progress has been made. They have requested and received cooperation and support from farmers and ranchers, other landowners, communities, cities and towns, industry, civic groups, and many others. Over 2,900 local soil conservation districts have been organized in the United States, covering over 95 per cent of the privately owned lands.

The major steps in planning and carrying out a conservation programme are:

1. A soil survey which delineates the soil, slope, and erosion to serve as an inventory of the soil resources the landowner must deal with.
2. Technical assistance from the Soil Conservation Service and other agencies to help the landowner develop a conservation plan for proper use and treatment of his soil and water resources, including improvement in the efficiency of farm operations.
3. Technical assistance from the Soil Conservation Service in the design and installation of needed measures, along with cost-sharing through the Agricultural Conservation Programme and loans available from the Farmers' Home Administration.
4. Adjustment in the programmes as needed to meet new opportunities or changing needs.

During the past several years the conservation programme in the United States has been broadened to include watershed protection and flood prevention, recreation and resource development. The proper use, care and treatment of the soil is paramount in all of these programmes.

The Soil Conservation Society of America, organized in 1945, chose as its motto: "To advance the science and art of good land use". The Society now has a membership of over 11,000 including members in many foreign countries.

The first National Soil Conservation Field Day and Plowing Contest was held at Pleasantville, Iowa, in 1946 The conservation work included all of the terraces, waterways, ponds,

A. R. MACKAY LTD.

Licensed Motor Vehicle Dealers

CNR. ST. ASAPH & DURHAM STS.

PHONE 40-129

WE WELCOME ALL CHAMPION PLOUGHMEN
ESPECIALLY CHAMPION'S USING
THE CHAMPION RANGE OF

DAVID BROWN TRACTORS

TO ALL COMPETITORS THE BEST OF LUCK

Let your next model be a David Brown and note the superiority.

Agencies: David Brown Tractors, Commer Trucks, Howard Rotavators, Clough Ploughs, Hayter Mowers, Unitruss Steel Buildings, Aktiv Mowers, Vicon-Lely Hay Rakes, Storrier Spring-tine Hustlers, Fairway Gang Mowers, Welger Balers, Bristol Crawler and Industrial Equipment.

North Canterbury Representative:

L.M.V.D. ARTHUR BURKE LTD Phone 12, Amberley

McKENDRY'S LTD.

- ★ CONCRETE KILLING SHEDS
- ★ WATER STORAGE TANKS
- ★ STEEL TANK STANDS
- ★ TROUGHS (CATTLE, SHEEP and PIG TYPES)
- ★ TROUGHS (ROUND FROM 40gal. to 200gal.)
- ★ TROUGHS (FOOT-ROT TYPE)
- ★ SHEEP LICK BOXES
- ★ CULVERT PIPES
- ★ POSTS

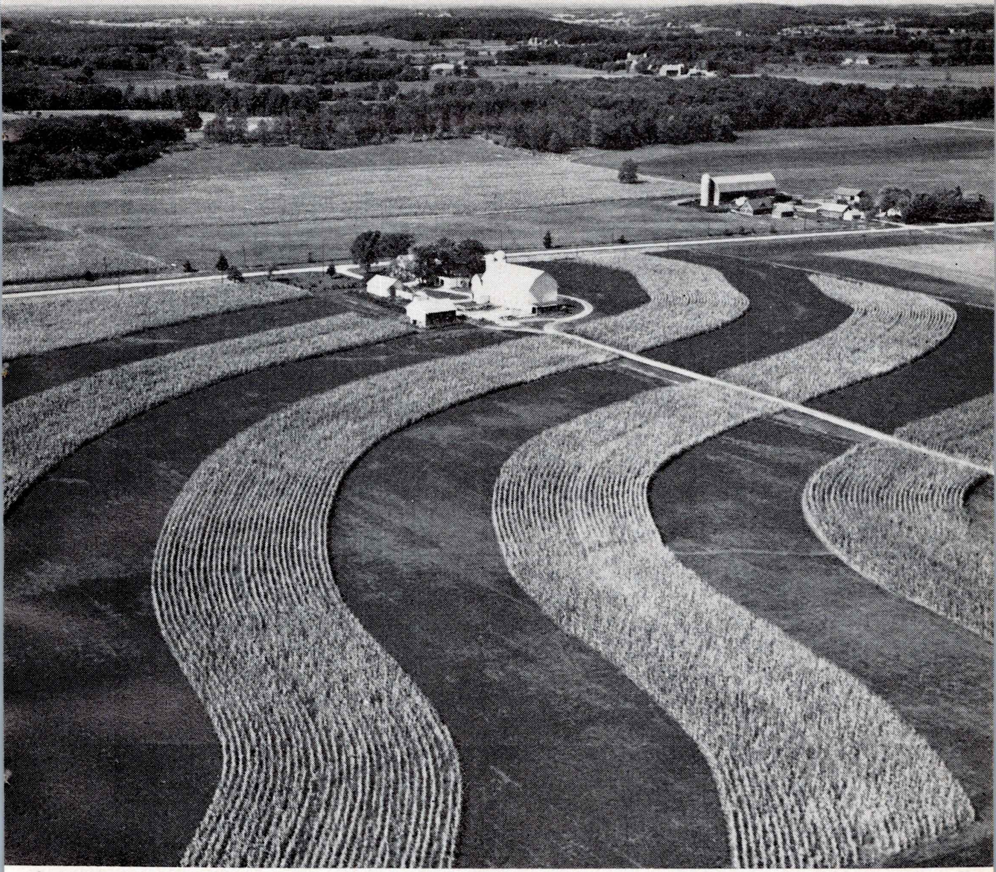
We invite enquiries for SHEEP DIP POTS and PRE-CAST SWIMMING POOLS

M. J. McKENDRY LTD.

26 - 27 TALFOURD PLACE, CHRISTCHURCH

(Next Lancaster Park)

TELEPHONES 64-197, 64-198. Also at Amberley and Timaru



Contour strip cropping on Kewaunee silt loam, 4 per cent. slope, corn and alfalfa strips.

seeding, and other practices needed on a farm. Clay Barnett of the Soil Conservation Service initiated the idea of demonstrating how an entire farm could be brought under a conservation programme in one day. This provided some 50,000 people who attended the event an opportunity to see first-hand how the conservation programme was applied. Herb Plambeck, Radio Station WHO, known as the founder of the national plowing contests in the United States, was happy to make these contests a part of the conservation field day event.

The main purpose of the contour plowing contest is to demonstrate that the plow, long recognized as the symbol of agriculture, when used on the contour, plays an important role in conservation.

The plowman's success in improving his soil and water resources and building efficient farm operations is our best hope for meeting the critical world food needs. Secretary of Agriculture Orville L. Freeman put it this way:

"Unless decisive action is taken, quickly, the grim race between people and food supply will be lost before this century is history. We are falling behind in that race . . . .

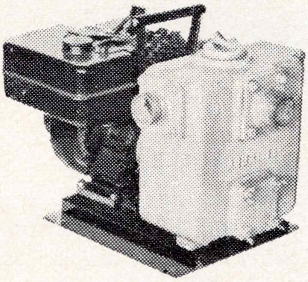
"Already two-thirds of the people of this world go to bed hungry or malnourished while the other third worries about eating too much. In this day and age, no less than 10,000 people a day perish from disease and malnutrition.

"Is there then hope in the face of such a calamitous threat? Yes, there *is* hope. More than that, there is even reason for optimism.

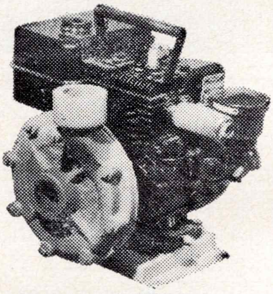
"We can find the guidelines to survival by turning once again to history.

"History teaches us what most contemporary economists are only now recognizing — that a healthy, viable, sustained agriculture is the *first and foremost* requisite for full economic development — and survival — of any nation".

PUMPS FOR ALL PURPOSES



AQUALITE
Self priming centrifugal pumps. Highly portable, versatile, reliable.



AQUAMASTER
Engine-driven, centrifugal pump, delivering up to 6,000 gallons per hour.

BROWN BROS. ENGINEERS LTD. **590 Colombo St.,**
P.O. Box 548, Christchurch,

Pumping Machinery Specialists Since 1908

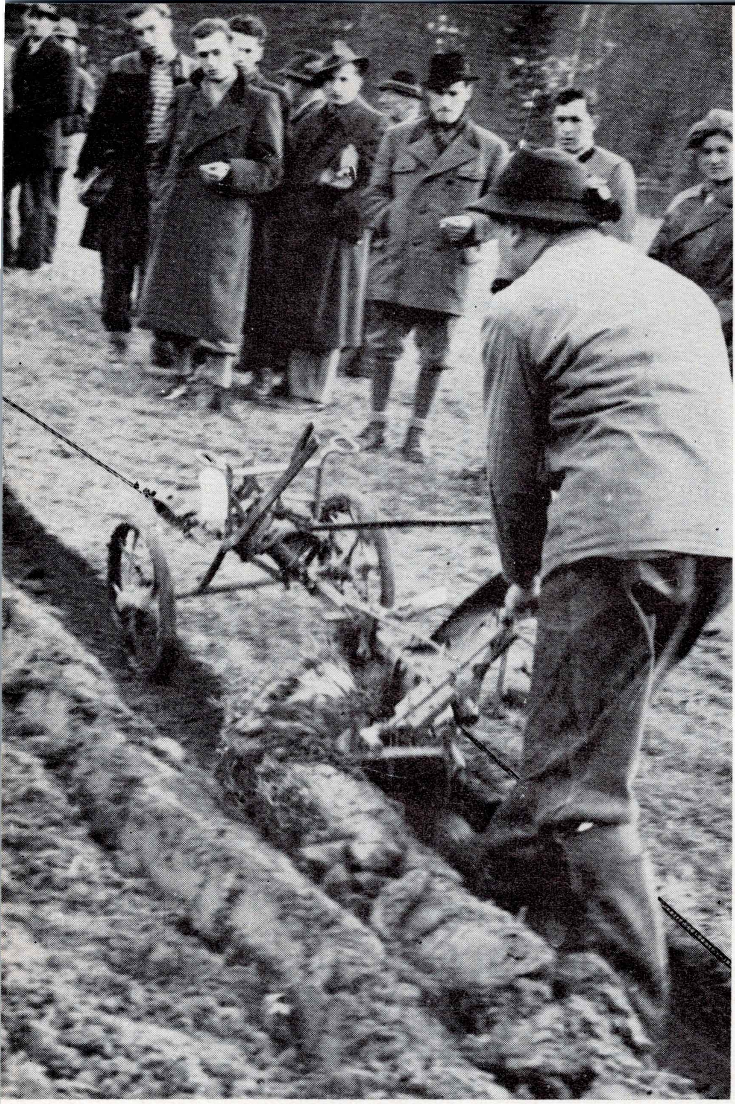
Hillside Farming in Austria

by Franz Geiger.

Austria has 396,500 farms, of which 116,800 are on hillsides, i.e. some 30 per cent. Compared with the lowland farmer, the hillside farmer is at a disadvantage in many respects. The comparison is all the more unfavourable when soil and climatic conditions are adverse, and where the slope of the fields to be cultivated increases in steepness and on holdings where the greater proportion of the land is steep. The difficulties associated with slope depend on the kind of crop. As a rule they are greater with arable than with grassland.

Soil cultivation on slopes is particularly important and requires great care. Working with a tractor is limited to less than a maximum slope of 25 per cent. and for steeper areas special pulley tackle has to be used.

Single tackle is employed for work perpendicular to the slope, and a double-purchase tackle for work across the slope. Guide pulleys are required for the rope return. When the slope exceeds 35 per cent the return of the implement is facilitated by



1. *Hillside ploughing using pulley tackle.*

working perpendicular to the slope because the weight of the implement itself assists the return.

(Fig. 1) shows an Austrian hillside plough on tackle. The man has to walk along the furrow as the implement advances. This is hard work. Ploughs of this type were in use up to 1950.

In order to simplify the work on hillsides as much as possible, and to relieve the man of such laborious work, Mr Reindorfer, an engineer from Tyrol, developed a framework for implement tackle to be used when the work is perpendicular to the slope. This device comprises a tubular framework, four wheels with pneumatic tyres of which the front pair can be steered by the man sitting behind the steering wheel, and a tool bar to which implements can be attached to perform the following work:

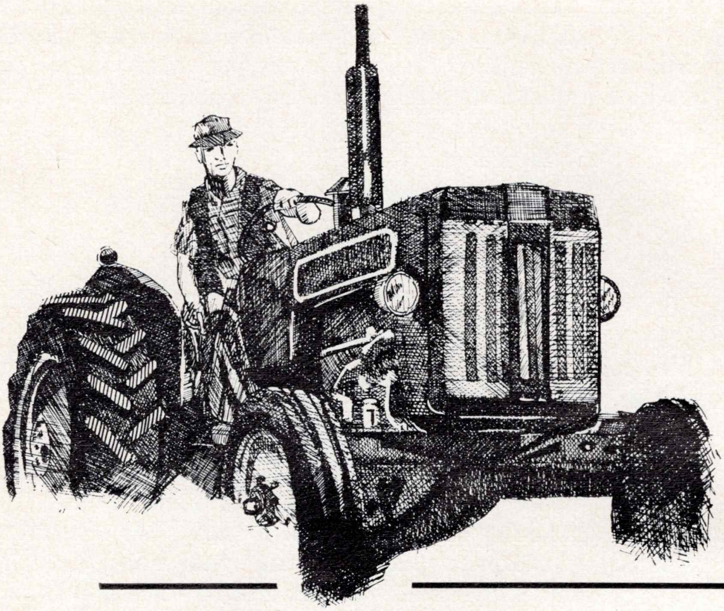
1. Ploughing
2. Cultivating
3. Earthing (potatoes)
4. Harrowing
5. Planting potatoes; an extra seat is provided for the potator setter.

This equipment enables hillside fields to be cultivated with comparative ease even in extreme conditions.

Another implement developed for work on hillsides is a Reaper-Spreader, which has been manufactured in Austria since the spring of 1966. It is designed as a combine, a universal machine for harvesting hay and green fodders. As illustrated on page 85, it comprises three constructional units, i.e., the drive, the working implements (reaper and hay machine), and the front axle. The machine reduces the time required for haymaking on the hillside by two-thirds compared with the old method using a motor-reaper and hay spreader, (i.e. from 8.77 to 3.24 hours), apart from a considerable saving in fuel. The savings can be as much as 63 per cent less working time and 50 per cent less fuel consumption.

The trend in agricultural technology in Austria is a striving to fully mechanize the arduous work on hillside farms and ease the labour of the mountain farmer.

FARMERS ! Let us quote you for
PREFABRICATED HAY BARNS — WOOLSHEDS
IMPLEMENT SHEDS — GRAIN SILOS. (Complete erection on your farm).
FARM TIP TRAILERS — CAR TRAILERS
PETROL & DIESEL TANKS — STEEL GATES
WATER BALLAST ROLLERS — HAY FEEDERS
WOOLPACK HOLDERS — DOG MOTELS
Call and inspect our display —
BURNETT'S MOTORS LTD.
Ashburton

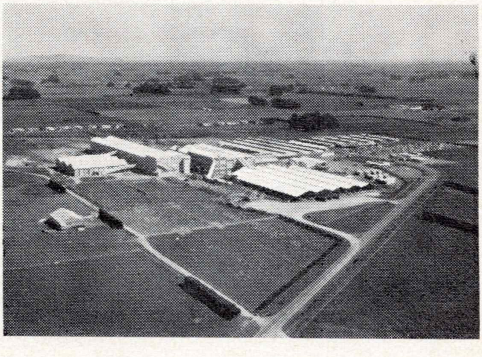


THE MAN

Must be many things. He must be weather-wise and careful of his stock — he must be an expert ploughman, a tractor mechanic, a carpenter. He must be a fencer and a drainage expert. But most of all to be successful he must be a businessman. Successful farmers know that modern buildings, systems and processes are the result of vast experience and they result in high efficiency.

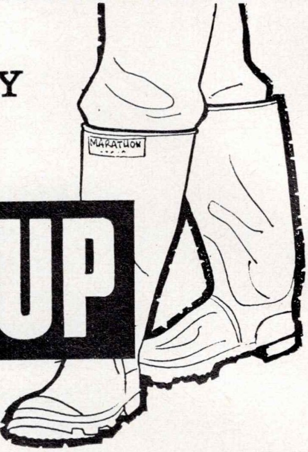
ALLIANCE FREEZING CO. is a modern Freezing Works. It has been built with the guide from many years' experience. It incorporates modern buildings, systems, and processes to create export produce New Zealand is proud of.

ON THE LAND



ALLIANCE FREEZING CO. (S'LAND) LTD.

P.O. Box 845, Invercargill   Telephone: 82-909   Cables: Standfast



ON THE HOTTEST DAY
OR COLDEST FROST

SKELLERUP

NATURAL RUBBER GUMBOOTS

Remain Comfortably Constantly Flexible

Made from the finest quality natural rubber from the plantations of Malaysia, Skellerup Gumboots maintain their flexibility under all conditions and all temperatures. Day after day on thousands of farms throughout New Zealand, Skellerup Rubber Gumboots are worn without a thought. There's no better compliment. When the going is tough, the superior strength and long lasting qualities of Skellerup Rubber Gumboots is something that farmers have proved for themselves—there is no substitute for Skellerup Natural Rubber Gumboots!

Made in New Zealand by MARATHON RUBBER FOOTWEAR CO. LTD. CHRISTCHURCH.

Rice — The World's Largest Crop

By David C. P. Evans.

For eleven hundred million people life is dominated by the one word: rice. To them it represents practically the whole of their diet, nearly all their agriculture — and much of their hope.

It is to them that F.A.O. — the Food and Agriculture Organisation of the United Nations — dedicated 1966 as "International Rice Year", within the framework of F.A.O's. Freedom-from-Hunger campaign.

F.A.O. have pointed out that it is by rice that one third of the world lives. At the present rate of population growth, by the end of this century that third will have become more than a half. Within the working lifetimes of children now being born, the population of the rice-eating East is likely vastly to exceed the population of the whole of the rest of the world put together.

Rice occupies more than 200 million acres of land — of which 90 per cent. is in Asia, where the difficulties associated with mechanisation are greatest. Even allowing for the fact that crops in the developed countries are grown on prime acreage whereas Asia must use big areas of marginal land, the following figures, showing average yields per acre in 1961-64, tell their own story:

United States	1,792,500 acres	— 3,996 lbs.
Latin America	10,700,000 acres	— 1,665 lbs.
Asia	208,625,000 acres	— 1,602 lbs.

Primary Tillage.

Primary tillage may include burning, hoeing, spading, ploughing, discing, harrowing, trampling and rotary tillage. Primary tillage to a depth of 4in.-6in. is preferred, as this provides sufficient loose soil for the later formation of a satisfactory puddle. The depth of primary tillage from season to season should be consistent so that the build-up of a hard pan is progressive and not broken down. Primary tillage performed at least 4 - 6 weeks before transplanting or seeding results in the best yields, — this allows time for weed seeds near the surface to germinate so that the young plants can be destroyed in later tillage operations. Another reason for early tillage is that sufficient time must be allowed for organic matter to decompose. Standard four-wheeled agricultural tractors can be used satisfactorily in primary tillage. When fitted with paddy cage wheels they are suitable, under most conditions, for wet tillage of land being prepared for rice. The use of tractors is, however, limited by the size of holding, layout of the fields, accessibility etc.

EVERY PLOUGHMAN'S A CHAMPION ON THE new

CASE®

830

Comfort King

He handles more acres every day, with the new Case 830 Comfort King—the tractor that harnesses all the horsepower and turns it into production. The Case-O-Matic torque converter helps him by sensing load changes automatically and supplying up to 100% more power without clutching, shifting, stalling. The Draft-O-Matic control ensures uniform ploughing depth. The deep-seated comfort means less operator fatigue.

See the Case 830 Comfort King in 3 great new models at

J.I.CASE (AUSTRALIA) PTY. LTD.
94 Shands Road, Hornby, Christchurch.
P.O. Box 16084.
Telephones 496-149 & 496-148.

C864

The rotary tiller has become a popular tillage implement owing to the rapidity with which it can prepare the land. On the other hand there are circumstances where the disc plough is superior to other implements. It leaves the land considerably rougher than the mouldboard plough and it also handles heavy trash well and will penetrate very hard ground. It has the same disadvantage regarding the problem of maintaining the field level as the mouldboard plough. Reversible disc and mouldboard ploughs can overcome this problem.

Secondary Tillage.

For conditions under which most of the world's rice is grown, secondary tillage refers to the creation of a puddle soil for transplanting or seeding. Secondary tillage has an important function in eradicating weed growth. Puddling is generally performed by one or more passes over the land with a suitable implement following upon primary tillage. The land is flooded prior to the puddling operation and the puddle should be about 4in. to 6in. in depth. This is often exceeded but there appears to be no justification for it as the organic matter should be dispersed near the bottom of the puddle.

In the puddling stage, several factors help to build a hard pan layer on the bottom of the puddle. Fine clay particles work down into the poorest part of any previous hard pan; chemical action takes place which seals the layer and physical efforts of cultivation pack the layer which becomes nearly impervious.

The advantages of tractor-mounted tools for puddling are as great as for primary tillage, although the same limitations apply. The work is greatly improved by the addition of a smoothing or levelling board behind the equipment such as on a rear-mounted disc harrow with a levelling board, to level off the land or the muddy slurry.

Planting Techniques and Equipment.

1. **Transplanting**

   It can be said that a transplanted crop yields more than one which is directly sown and considerable experimental evidence is available to support this statement. Under some conditions, however, it may be more advantageous to sow directly. Weed control is the greatest single reason for transplanting rice and growing it under flood conditions.

   The seedlings in the nursery are pulled up in small bunches without regard to the amount of roots that are retained on each plant. The quantity of seed required to transplant an acre depends on various factors, but the usual rate is about 20 lbs. per acre for good land.

Available to farmers
everywhere - the service of the

ROYAL

Insurance Group

with its experience and understanding of the special problems of the modern farmer

Our world-wide representation ensures that, wherever you are, you are always near the 'Royal'

ROYAL
INSURANCE
GROUP

See Telephone Directory for address of nearest branch

2. **Direct Seeding**

The main reason for direct seeding is that it requires much less labour than transplanting. The hand broadcasting method is very common, although in many areas seeding in rows is preferred so that efficient weeding tools may be used.

Equipment and Techniques for Weed Control.

One of the most important means of controlling weeds in rice fields has been called the ecological method, by which is meant that the field environment is kept unsuitable for the emergence and growth of weeds by such operations as irrigation, tillage, crop rotation and time of planting. The damage from weeds is reduced by increasing the ability of rice plants to compete through improved fertiliser practices, regulated density of planting or arrangement of plants. The most important ecological method, and that commonly used, is controlled flooding.

The mechanical control of weeds involves cutting, chopping or burying weeds with the aid of hand tools, animal- or engine-powered equipment. This is a time consuming and expensive operation, but one which is indispensable in most rice-growing countries. The importance of seeding or transplanting in rows (which makes the seed accessible without trampling the rice plant) is apparent.

Chemical weed control involves the application of carefully chosen chemicals (herbicides) which act on the plant to kill it upon emergence or at a later stage of growth. The chemicals used are selective in that if properly applied, they kill only broad leaf weeds of certain kinds of grasses, that allow the rice to continue growing unharmed.

Harvesting.

Methods of harvesting paddy in the East are simple, but entail much labour. Vast areas are reaped by hand, either with a sickle or with other hand-operated knives.

Since a large percentage of the world's rice harvesting takes place in very wet or flooded land, harvesting represents a tremendous challenge to the engineers engaged in designing suitable machines. Special track equipment or extra large tread tyres are required to ensure trouble-free operation. Peg tooth cylinders and concave are also essential to ensure a good stripping action during threshing.

Storage.

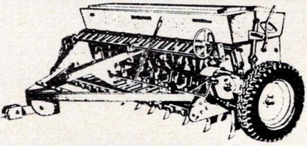
At the present time losses due to inefficient storage amount to between 30-40 per cent of the total crop. In the short term, it is here that scope for the biggest improvements are to be found.

AMONG THE WORLD'S FINEST — DUNCAN 520 SEMI-TRAILER

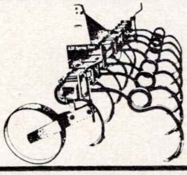
The 520 Semi-Trailer is a new type of plough with all the advantages of the flexible trailer plough plus the convenient transport advantages of the mounted plough. Developed to exacting requirements for effortless large areas and hill work where the plough follows the contour of the ground. Heavy duty steel transoms. Large high speed type mould-boards. High tensile steel one-piece full length beams. Pneumatic tyred furrow wheels.

700 SEEDLINER

A product of extensive field testing and research. Of vastly superior design and performance, crammed with exclusive features. Winner of the Gold Medal award at 1964 Canterbury A. & P. Show.



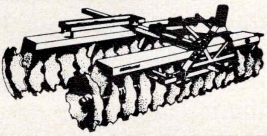
630 SPRING-TINE CULTIVATOR



A live action heavy duty cultivator with good penetration in hard soils and ample clearance in trashy, turfy conditions. Features include 25in diagonal clearance between tines. Heavy duty, spring steel, live action tines.

800 MOUNTED DISC

Incomparable in design and performance. The only automatic weight transfer mounted disc harrow on the market. Patented in U.K., Aust. and N.Z.



BE SURE TO SEE ALL THESE IMPLEMENTS
ON DISPLAY AT THE SHOW.

P. & D. DUNCAN LTD

ST. ASAPH STREET, CHRISTCHURCH.
DEALERS THROUGHOUT NEW ZEALAND

DUNCAN
IMPLEMENTS

4854

Pioneers in the New Zealand Agricultural Equipment Field

A Brief History of P. and D. Duncan Ltd.

Like many other business houses that are now large and important, P. & D. Duncan started in a small way. The founder, Peter Duncan arrived in Lyttelton from Scotland in 1863. He commenced repairing farm machinery for a Mr William Boag, an advanced Agriculturist. In 1867 Mr David Duncan, a ploughsmith from Brechin, Scotland, joined his brother in the venture and made a plough.

The fame of that first plough spread around the country and a thriving plough building business developed. The two brothers called their business, "The South British Agricultural Implement Works", but this factory was destroyed by fire on Christmas Eve, 1869, with the loss of all equipment and no insurance cover. The courage of these pioneers could not be daunted and staunch friends helped them build temporary premises. These soon proved too small, and by 1876 new premises were built and 40 men kept eight forges going. The business expanded rapidly, especially after the three-wheeled plough was developed which made possible the "bonanza" wheat farms of the 1870-80's.

The business continued to expand and by 1894 the factory covered nearly three and a half acres and as well, a factory was established in Ashburton, the centre of a large wheat growing district. By this time the factory was manufacturing ploughs in all sizes, disc harrows, tine harrows, wagons, drays, grain and fertilizer drills, etc., as well as general engineering and foundry work. In 1897 a Mr James Keir, then manager of the firm, invented a spring-tine cultivator which found a ready market and soon thousands were in use all over the country. An export business was opened up and machines such as drills, ploughs and cultivators were shipped to South Africa and Great Britain. Many gold medals have been awarded the Company's products at Agricultural Shows.

In May, 1940, arrangements were made with Massey Harris Company Ltd. of Canada to manufacture their line of seeding and tillage machines for the New Zealand market.

The history of Duncan's shows how the pioneers' spirit of hard work, endurance and courage has remained with the firm to the present day, enabling it to play a leading part in the Dominion's agricultural and manufacturing progress.

The Harry Ferguson Story

In 1948 Queen's University, Belfast, conferred on Harry Ferguson the honorary degree of Doctor of Science, in recognition of his achievement in engineering research. He also was an honorary Master of Engineering of the Dublin University, an Associate Fellow of the Royal Aeronautical Society and a Fellow of the Royal Society of Arts. Ferguson died in 1960, aged 76.

Eighty-five per cent of the tractors sold in the world today are based on the principles of a humble farmer's son from Northern Ireland — Harry Ferguson. Backward agricultures have been mechanised, arid wastelands have been transformed and everywhere the tractor has replaced, or is replacing, the oxen and horses which were the symbols of farm inefficiency in Ferguson's youth.

In the brighter light of subsequent achievement it is ironical to record that Harry simply hated farm work. Or did the realisation of its drab inefficiency in that non-mechanised era kindle the flame of latent genius that was to mean so much to world agricultural progress?

The Ferguson saga had a humble beginning. One of three sons, Harry was born on his father's small farm in County Down, Northern Ireland, on November 4th, 1884.

His parents were devout, industrious but pitifully poor. The income from their farm produce was barely sufficient for food and clothing.

In this environment an extensive education for young Harry was out of the question. He was withdrawn from the village school almost as soon as he had learnt the rudiments of reading and writing.

Most of his childhood was spent helping his father and brothers with routine farm chores . . . hoeing, scything, driving horse teams, tending cattle, milking and carting.

But Harry and brother Joe, three years his senior, showed more than a passing interest in machines. The pioneering automobiles and motor cycles of their youth excited their imagination. Joe saw a future in servicing the contraptions and little inducement was required for Harry to join him in a rented back street workshop in Belfast.

The partners had no mechanical knowledge and no prospect of being trained adequately. When Joe expressed some doubt about their ability to cope, Harry made light of the problem: "We'll teach ourselves", he said. "We'll find out how these engines work by taking one or two to pieces".

The young Harry soon mastered the new machines and quickly earned for himself a reputation for skilful and prompt repair work. At 19 he had designed and built his own motor cycle. And then, four years later, in 1907, he shocked his brother Joe by building his own motor car and entering it in an international race against established cars from Britain, France and Germany.

But the restless Ferguson mind did not stop there. In 1909, stirred by Bleriot's Channel crossing in the famous monoplane, Harry designed and built one of his own. On December 31st of that year he became the first man in the British Isles to build and pilot a heavier-than-air machine. Ferguson's altitude was about 20 feet; the journey a mere hundred yards. But history was made.

The motor repair business was now a thriving enterprise and Ferguson's prowess as mechanic, racing cyclist, automobile and aircraft designer did not escape the notice of the Irish Government.

When the First World War erupted Harry was engaged by the Department of Agriculture to supervise the operation and maintenance of all farm tractors.

This was an appointment with destiny.

The tractors of the day were heavy, cumbersome contraptions with some decided economic advantages over the draught animals they were starting to replace throughout the British Isles — and some mechanical disadvantages as well.

There was distrust and an element of fear associated with this new mechanical era. There was the customary resistance to change. One of the principal objections by farmers was that these very heavy units tended to compact the pan beneath the topsoil, thus depriving the sub-soil of access by rain and air and causing loss of fertility.

Because of his farming background Ferguson understood the problems. He sympathised with farmers who pointed out the limits of mechanisation.

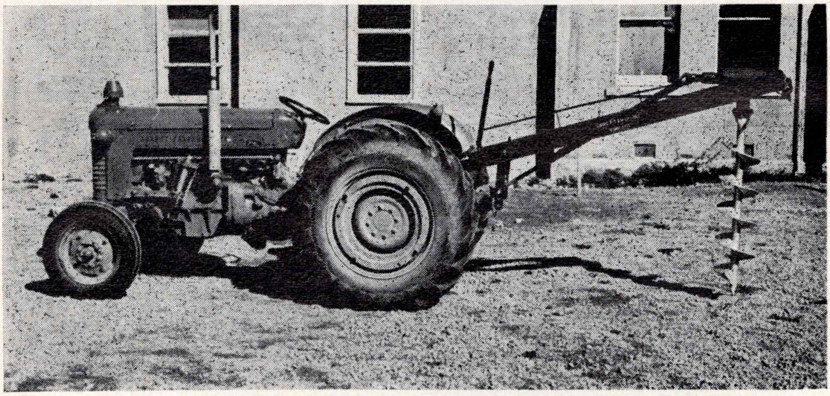
"Agriculture", said Harry, "is more important to mankind than all the other industries put together. Yet it is the only industry conducted by antiquated methods".

It would be necessary to design implements to suit tractors, just as the ancient tools were fashioned for oxen, mules and horses. Of the utmost importance was that some method should be devised of linking the implements to the tractor to ease soil compaction while maintaining — or improving — traction.

Thus was born, in the fertile brain of Harry Ferguson, the germ that developed into the world-renowned Ferguson-System— a system that is followed by most of the world-wide tractor manufacturers of today.

POST HOLE DIGGER

Many hundreds of these diggers are operating throughout New Zealand in all types of soil conditions and the many modifications carried out over years of trials, now enable us to produce a sound machine at a reasonable price.



Annett & Darling Ltd.

GENERAL ENGINEERS

9a Woollcombe Street, Timaru Telephone 4817

Manufacturers of: Wool Scouring Machinery, Post Hole Diggers, Trawl Winches.

Agencies: Renold Transmission Drives, Trojan Vee Belts.

Amelioration Ploughing

by Dr. Anton Kunze.

The process of intensifying agricultural production involves the problem of how to bring into cultivation the less fertile sandy soils of low ground water levels. Sandy soils account for about 16 per cent of the arable area in the eastern-part of Germany known as the German Democratic Republic and to improve considerably the yield efficiency and yield safety of these soils has become a crucial economic target.

Inadequate absorption capacity is a major cause of low fertility and instability of yields. The water capacity is so small that insufficient water can be secured to supply the crops in dry periods.

Another inadequacy is the unfavourable physical and chemical properties of the subsoil. Compact stratification, acidity and nutrient deficiency are common subsoil characteristics. Few roots will penetrate these soil strata so that the only nutrient and water reservoir available to the crop plants is the shallow topsoil stratum.

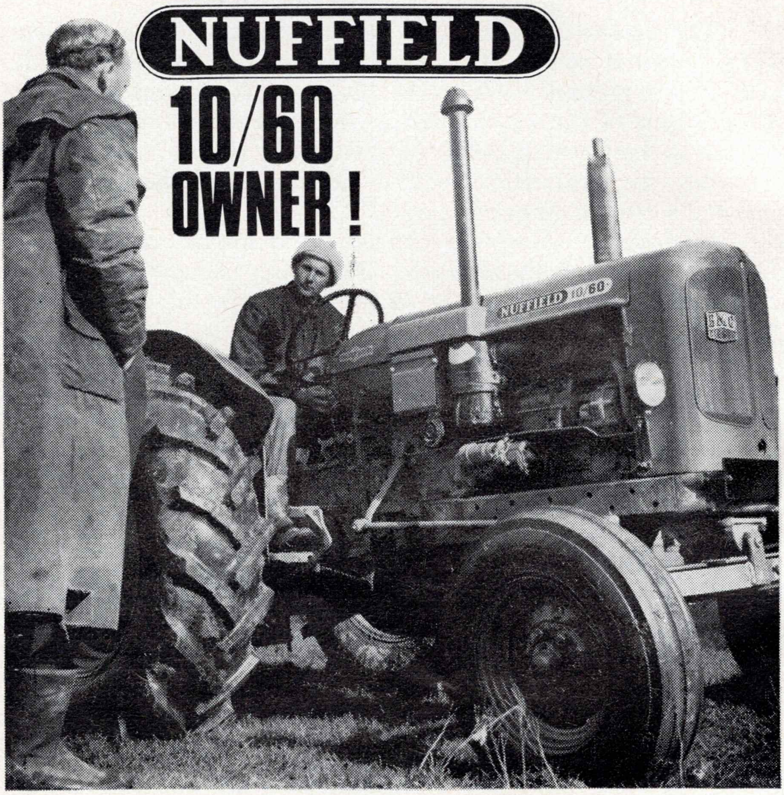
Since 1925 studies aimed at essential improvement of light sandy soils have been carried out at the Muncheberg Crop Farming Institute, various Test Centres, and on numerous farms. The Muncheberg site is characterised by rust-red sandy soil containing some six per cent clay and silt, 0.7 per cent humus, pH-values below 5, and low nutrient content. Low water capacity (5 - 6 weight/per cent) and little precipitation (500 mm. average) are causes of frequent dryness damage.

Double-topsoil depth cultivation was found to be the most effective amelioration approach to that soil. The B-185 Special Plough *ad hoc* designed by the Institute, in cooperation with the National Soil Tilling Equipment Makers at Leipzig, can laterally displace a slice, 50 cm. in width and 40 to 45 cm. in depth, without it being turned. An additional shallow-plough is sued to embed a shallow layer of topsoil (less than 50 per cent of the topsoil stratum) together with top growth, spread farmyard manure, mineral fertiliser, and lime into the open furrow.

Such excessive loosening and deep application of a nutrient-concentrated absorption stratum has resulted in a substantial change of the soil characteristics.

The chief factors include the elimination of the previous compaction of stratum below the topsoil, essential improvement of water infiltration and storage in the cultivated subsoil, increase of pH-value, and positive effects on the nutrient and humus equilibriums. Whilst only 10 per cent of the organic matter

ASK ANY NUFFIELD 10/60 OWNER!



10/60 owners everywhere testify to the tough, slogging, power of the Nuffield 10/60 - 60 b.h.p. with ten forward and two reverse gears as standard equipment.

Price: Complete with all standard equipment plus: Independent power take off, hydraulic lift and linkage (incorporating automatic depth control), independent hydraulics, extended axle hubs and on 14 x 30 6-ply rear 7.50 x 16 6-ply front tyres.

ONLY £1209 (SUBJECT TO CHANGE WITHOUT NOTICE)

THE DOMINION MOTORS LIMITED

Licensed Motor Vehicle Dealers.

Head Office: 59 Courtenay Place, Wellington. Also at Auckland, Tauranga, Hamilton, Lower Hutt, Christchurch and Timaru

DEALERS EVERYWHERE

supplied had been retained as humus in the soil under the conditions of normal cultivation, now 30 per cent were retained after ameliorative ploughing.

Plant root development in the subsoil was substantially improved as a result of the better chemico-physical properties. Studies of root distribution and localisation disclosed that some 12 per cent only of winter rye roots had penetrated the soil deeper than 20 to 22 cm. under the conditions of normal cultivation and fertilisation, while the same depth was reached by 25 per cent after ameliorative cultivation and fertilisation.

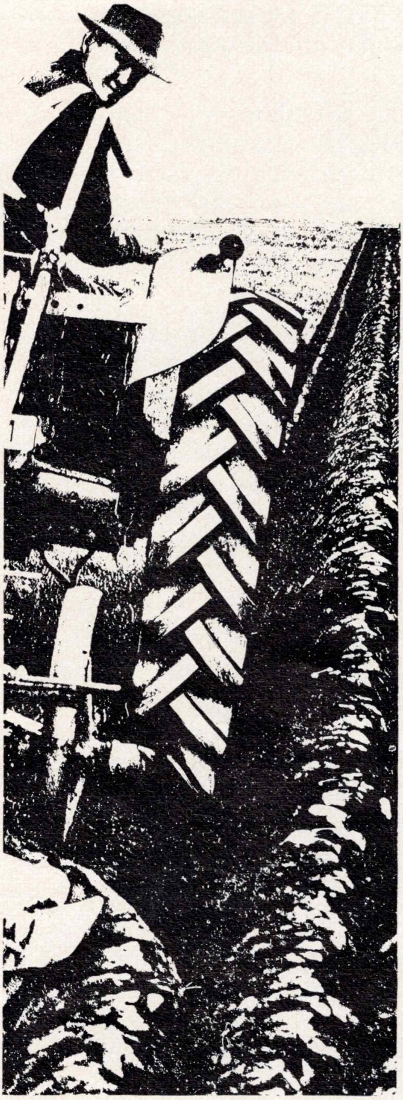
Such intensified root development enabled the plants to absorb bigger amounts of ground water, and utilisation of the nutrients applied was improved. Observations made during dry periods of three to four weeks revealed no effects of water deficiency on the plants in amelioration cultivated plots, whilst during the same period dryness damage had occured in normally ploughed fields. Nitrogen balances were set up to show that the amount of nitrogen fertiliser utilised for the formation of plant matter and humus compounds was between 50 and 60 per cent only in the normally ploughed variants, whilst it was between 75 and 80 per cent in the amelioratively ploughed plots.

Improvement of growth and nutrition conditions of the plants by ameliorative cultivation had positive effects on the yield. The average 12-year surplus yield obtained from an intensive crop rotation (potatoes-winter rye-silo corn-winter rye) in the oldest amelioration test amounted to 13 per cent.

Numerous further tests helped to determine that the method was suitable mainly for sandy soils of low ground water tables in which the fine earth content of topsoil and subsoil was less than 12 per cent.

Ameliorative organic manuring of 300 dt/ha was found to be the optimum amount, and half of the farmyard manure could be substituted by lowland-moor peat. Lowland-moor peat concentrated with urea or faeces has been recently used with good success for sandy soil improvement.

Sheep's fescue or marsh lupines grown as ameliorative plants on waste land were found to give favourable conditions for ameliorative cultivation. Applications up to 30 dt/ha of $CaCO_3$, depending on actual acidity, had to be amelioratively applied together with ameliorative ploughing to allow for the high degree of acidity by which mainly the subsoil of our light sandy soils is characterised. The same amounts of lime were applied to the topsoil one or two years after ploughing.



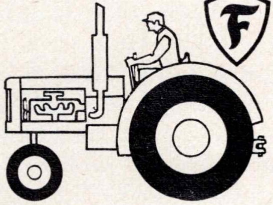
FIRESTONE welcome you to Christchurch for the New Zealand and World Ploughing Championships and invite you to visit the FIRESTONE Factory during your stay

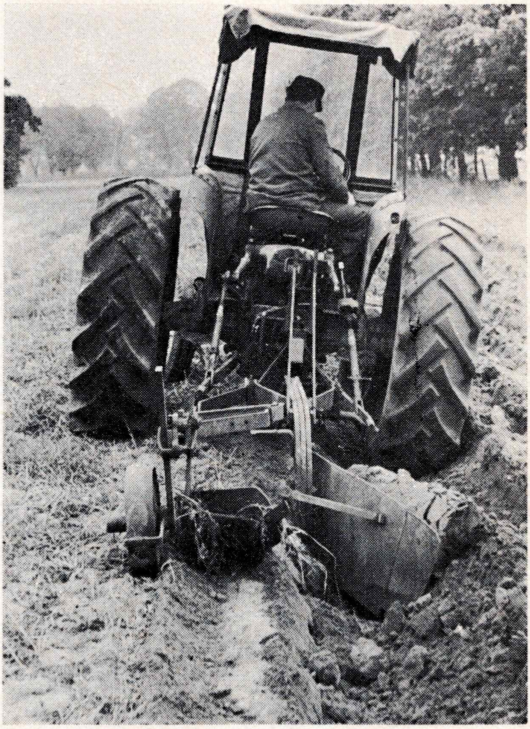
Factory Tours 10.15 a.m.
and 2 p.m. Daily

Ring FIRESTONE 526-128
for a personal conducted tour

Firestone

Choice of Champions





The right-hand side mouldboard pushes the deep slice whilst the following (left-hand side) mouldboard turns a shallow top slice into the deep furrow.

It is a remarkable finding that no repetition of ameliorative ploughing has so far been necessary. On the contrary, some test repetition carried out in subsequent years resulted in yield decline because too much subsoil of unfavourable physical and chemical properties had obviously been mixed into the topsoil.

Practice tests have given excellent results when, after one ameliorative ploughing by which the greatest possible amount of topsoil was retained on the surface, subsequent ploughing for root crops was some centimetres below normal. It is thought that in this way gradual deepening and concentration of the topsoil can be achieved.

Average surplus yields of 20 to 25 per cent were obtained from large-scale tests carried out for the practical introduction of the method. Additional expense was compensated by surplus yields achieved as early as in the first year (40 dt/ha of potatoes average). The surplus yields were beyond 10 per cent even in the seventh year of these large-scale tests.

More than 50,000 ha of light sandy soils in the GDR have been amelioratively ploughed during the past four years.

New Zealand's leading ploughmen drive FORD tractors.*

* Two of the last three
Silver Plough winners
drove FORD tractors.

TRACTORS
Ford
EQUIPMENT

FTR/67/2

In 1966 six of our ten most proficient ploughmen drove FORD tractors.

They chose FORD tractors for precision ploughing in all conditions. They chose well, for their skill plus the outstanding all-round efficiency of the FORD tractor provided the winning combinations.

FORD tractors show their worth even more effectively on the farm, where superior performance leads directly to greater work output and increased profits.

Throughout New Zealand and all over the world FORD tractors are proving themselves magnificent performers in all conditions.

Ask your FORD tractor dealer to demonstrate the new FORD tractors with the optional Select-o-Speed transmission — you can work all day and never touch a clutch!

TRACTORS

Ford

EQUIPMENT

Ford Motor Company of New Zealand Limited,
Lower Hutt. Licensed Motor Vehicle Dealer.

FTR/67/2

SUCCESS ASSURED

With Ransomes Implements

See

The

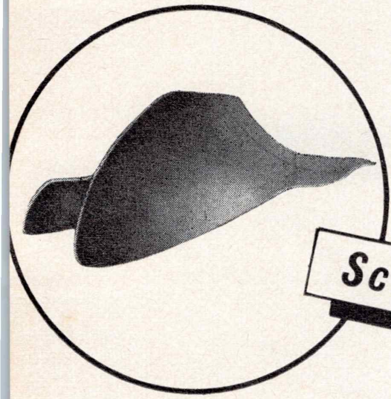
New Body

Scientifically Designed

RANSOMES
world renowned
extensive range
distributed
throughout
New Zealand by

Bisley's
MACHINERY SPECIALISTS

HAMILTON — CHRISTCHURCH
Branches and Dealers throughout New Zealand



Tillage Implements for the Orchard

By Professor Dr. Kalman Lammel.

It is an important requirement that tillage tools for the orchard must be capable of cultivating the entire soil surface. They must be designed to work effectively close up to tree trunks and be capable of operation without hitting them.

The necessity to evade trees influences the types of tillage tools to be used and the most suitable are likely to be those which can be relatively easily moved sidewards as well as forward and backwards. In this category are mounted harrows and rotating hoes. Less suitable for comparatively quick sideways motion are the deeper working disc implements and cultivators. The least appropriate are the ploughs. When choosing a tractor one must also have in mind the need for lateral movement. According to experience we have gathered in Hungary, the very stable nose-heavy tractor types with four-wheel drive are the most suitable for this purpose. Tractors working in orchards should be equipped with branch deflecting casing

Tillage implements to be used in orchards are first of all determined by the height of the bottom of the crown of the tree and their diameter. In case of trunks which can be approached to within one yard approximately or less the greater part of soil cultivation can be done with the usual farm implements. Where a longer offset is needed the use of the well-known offset disc-harrows is adopted. For the cultivation of the total soil surface under trees with a crown-diameter larger than four yards, however, even the offset of these does not suffice . Several years ago we made experiments in Hungary aimed at the development of types of implements making possible as much as a 3 to 4 yard offset. During the course of the experiments we elaborated three kinds of principles, which proved appropriate to ensure the wanted offset. In the following I explain these principles and the implements developed on this basis.

1. According to the principle of the symmetric arrangement of implements the cultivator reaching under the tree-crowns is coupled to a cultivator working on the other side of the tractor at the same distance and with the same resistance, thus the torques exerted on the tractor are compensated and the adherence of the tractor to its direction remains unchanged.

   By means of the symmetric arrangements, implements with

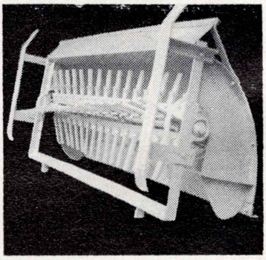
The Waitaki Farmers' Freezing Co. Ltd.

PUKEURI

Processors and Exporters of
FROZEN MEATS — WOOL — PELTS
TALLOW — CASINGS — NEATSFOOT OIL
LIVERMEAL — DRIED BLOOD
and
DEHYDRATED INSTANT MASHED POTATOES

TELEPHONE 70-211 OAMARU
CABLE PRIMEAT NEW
WRITE BOX 78 ZEALAND

Save seed with the MURPHY PICK-UP



The MURPHY PICK-UP is a sound investment. Those extra heads SAVED will pay for the machine in a matter of HOURS not DAYS. Will pick up crop light or heavy.

Its suction effect will lift the shortest crop, or that BLOWN CROP when heads only are left.

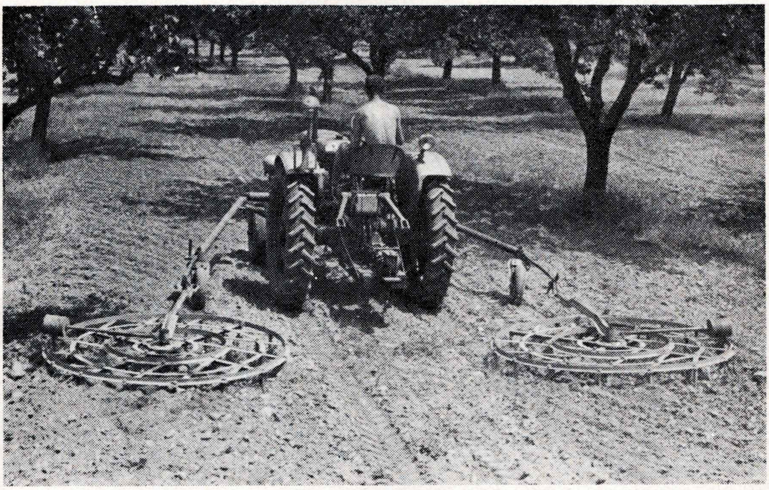
The only Pick-Up that picks up in the wind.

★ **MANUFACTURED IN 5 MODELS 5ft. 6ft. 7ft. 10ft. 12ft.**
★ **EASILY ATTACHED TO YOUR HEADER.**

These machines have proved themselves in clover, peas, seed and grass crops.

Murphy Farm Machinery Ltd.

Workshop: 5 PENN PLACE, CHRISTCHURCH
Teelphone 21-790 After Hours 44-989
Wright Stephenson & Co. Ltd.—Sole Agents of Australia.



The rotary harrow.

small resistance adjusted themselves well to the soil surface and proved to be serviceable. Such implements were harrows, which rendered possible shallow cultivation and a certain degree of weeding. From among the harrow types the rotary harrow seemed to be the most suitable, since it adjusts itself well to the unevennesses of the surface and can be built with a large diameter. The pulling point falls far inside the extremity of the trees; owing to their rotation they accomplish more effectual weeding and get less plugged with weed than the common harrows. A linkage mechanism with a joint was designed by means of which the distance between the harrows can be adjusted by an automatic control or by hand from the tractor seat.

2. In the case of the cultivator driven by the p.t.o. of the tractor no reaction is exerted on the tractor by the implement. The implement may move at an optional distance from the tractor without exerting a deviation torque on it. To this group of implements belong the rotary-hoes rotating in the direction of the travel. According to experience, the tillage implements can be formed for any sort of soil in such a way that they have a forward impulse on the tractor to which they are attached by a three-point linkage.

3. Utilizing the principle of the torque-compensating arrangement we used a cultivator on which a reaction component acts vertically to the direction of movement. We attached the cultivator to the tractor in such a way that this power effect would compensate the torque resulting from the

All drainage and irrigation problems solved everytime with the D-P Ditcher

d-p DITCHER

- ★ Fits all tractors with hydraulics.
- ★ Digs and clears up to 4 feet deep and 6 feet wide.
- ★ Converts to grader blade with one easy operation.
- ★ Guaranteed tough and indestructible.

FOR FULL INFORMATION CONTACT THE SOLE AGENTS:

ALAN WILLIAMS & CO. LTD.
P.O. BOX 8103 RICCARTON
TELEPHONE 30-819.
AFTER HOURS 896-677

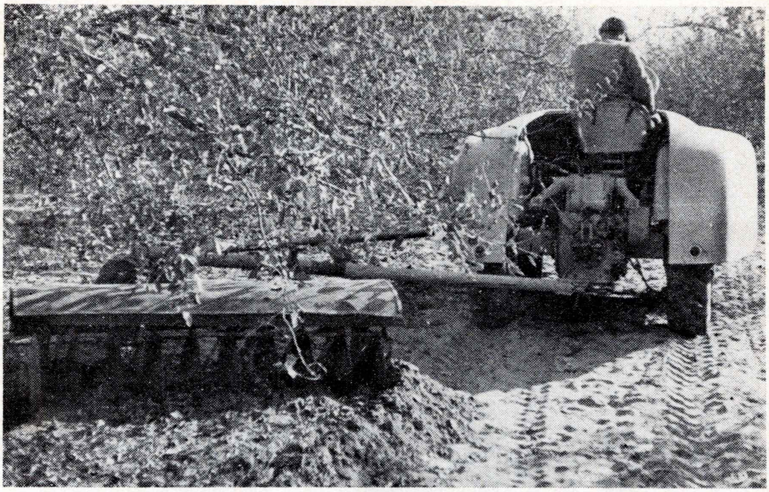
B. A. Turner Ltd.

SPECIALISTS
LAND DEVELOPMENT AND LANDSCAPING

B. A. Turner Ltd., are specialists in all forms of landscaping. From Swimming Pools to Tennis Courts, work is done efficiently and expertly. B. A. Turner Ltd., have done the landscaping for the Shirley Lodge, Russley and now White Heron Hotels.

★ ALSO AGRICULTURAL CONTRACTING AND GENERAL EARTHMOVING THROUGHOUT CANTERBURY

B. A. Turner Ltd.
303 RUSSLEY ROAD, CHRISTCHURCH, 4
'Phone 519-273



Working under trees with power-driven (p.t.o.) disc tiller.

single-side pulling power effect. Thus we achieved that the resultant of the torque acting on the front of the tractor causing deviation was 0. The disc tiller constructed on the basis of this principle can be used with success for cultivation under trees.

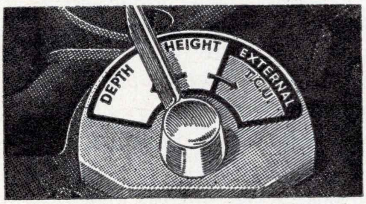
We tried several solutions for the control of the offset movement of tillage implements. Among these the semi-mechanical control proved to be the most adequate. The rotary harrow and the rotary-hoe shown in the illustrations are fitted with such indirect mechanical control devices. A bamboo rod used as a feeler turns against a spring of small resistance, when coming into touch with a tree. When turning it starts operating a hydraulic device controlling the hydraulic equipment of the tractor. This puts the hydraulic cylinder into operation which regulates the distance of the implement. By means of the linkage mechanism the working cylinder pulls the implement towards the tractor, thus the implement evades the trunk. After evading the tree the bamboo rod, so far having been permanently in touch with the tree, swings back to its original position actuated by the spring and, consequently, the hydraulic cylinder pushes the implement out again between the tree-rows.

The tillage implements for orchards of low trees with large crowns worked well in practice and their different types have been manufactured in series for a number of years. The machines are built with a streamlined casing in order to avoid the low branches getting caught and damaged.

Finger-flick
Hydraulics

NEW DAVID BROWN

SELECTAMATIC



A finger flick transfers Selectamatic operation to:

- Automatic Draft control—for implements without depth wheels.
- Traction Control Unit (TCU)—for implements with depth wheels.
- Positive height control.
- Remote control — external hydraulics services.

from **£842**

DAVID BROWN

SELECTAMATIC

Prices and specifications subject to change without notice

N.Z. Distributors: Todd Bros. Limited, Licensed Motor Vehicle Dealers, Wellington

DAVID BROWN!

The simplest-ever dial-it-yourself hydraulic system means you sit back in comfort . . while the dial-it-yourself hydraulics on the new David Brown Selectamatic do the work. Just flick the Selectamatic lever to the hydraulic service you require . . . Draft Control, Traction Control (TCU). Positive height control, Remote control.

ASK YOUR DAVID BROWN DEALER FOR A DEMONSTRATION OF THE NEW MODELS—NOW!

To: Todd Bros. Limited,
Licensed Motor Vehicle Dealers,
Box 2295, Wellington.

Please send me full details on the new range of David Brown Selectamatic Tractors.

NAME ....

ADDRESS ....

....

Selling to the World

DAVID BROWN SELECTAMATICS HIT THE JACKPOT

Never in the history of David Brown Tractors has such success been achieved within twelve months of the introduction of a new range of tractors. Farmers throughout the world have welcomed the new, simplest ever, Selectamatic hydraulic system as a revolutionary advance, and have endorsed their opinion with their orders.

Since the white Selectamatics were introduced, production of tractors at the David Brown factory in Meltham, Huddersfield, has expanded by over 30 per cent. Yet the assembly line is still not keeping pace with orders. A spokesman for the Company said recently, "We have never expanded production so fast, and the order book has never been so consistently full, in the firm's history".

Recently the Queen's Award to Industry was presented to the Company for export achievements — four out of every five David Brown tractors go abroad.

Presenting the Award, the Earl of Scarbrough described the Company's breakthrough into the American market as a "classic example of how to achieve rapid penetration in a formidable market".

In view of the terrific expansion of sales, production has not been able to meet the demand. This means that production facilities have to be increased and it has, therefore, been decided to make available £11,000,000 for expansion. This expansion is scheduled for completion in four years' time and production during that period will progressively increase and will mean on completion that present production will by then be doubled.

The David Brown Corporation is wholly British owned and the success of the Company has been a triumph for the engineering skills, the foresight and business ability of a truly British concern. It is not only in the tractor world that David Brown are acknowledged for quality and leadership as the firm was founded in 1860 and from then on acquired a reputation for the quality manufacture of gears and precision tools which has raised it today to the forefront of the world manufacturers.

In addition to these activities, David Brown manufacture the famous Aston Martin and Lagonda motor cars. David Brown himself took a great interest and personally took part in motor racing and there is no need to again quote the terrific success of Aston Martin in the motor racing world or the interest the specially built and equipped Aston Martin aroused in the James Bond film "Goldfinger".

Ploughing Ceremonies in East and West

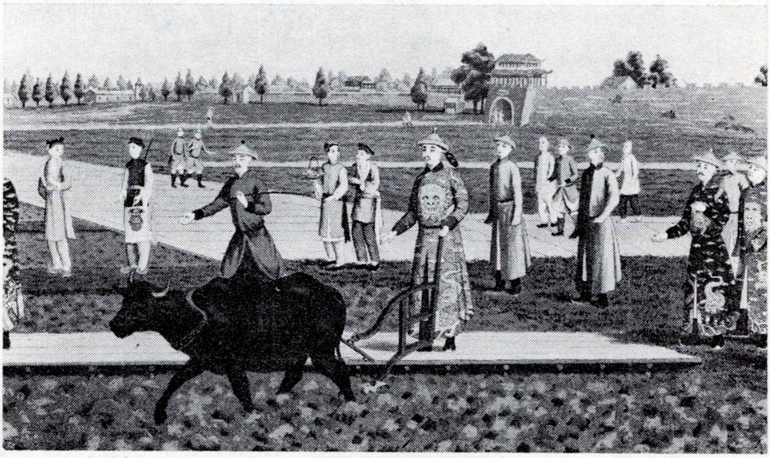
by Heinz Haushofer [*]

In the great old farming civilizations it was a tradition that the ruler of the country began the spring tilling by drawing the first furrow. Such ceremonies stemmed from the early customs performed by the heads of families, clans or tribes, which became ritual through thousands of years. We can still perceive the origin of these ceremonies from the fact that even up to modern times in Europe, village councils formally decided upon the principal dates for tilling the fields. Ploughing, sowing or pasturing the cattle did not start before the agreed dates which were adopted "In the name of God".

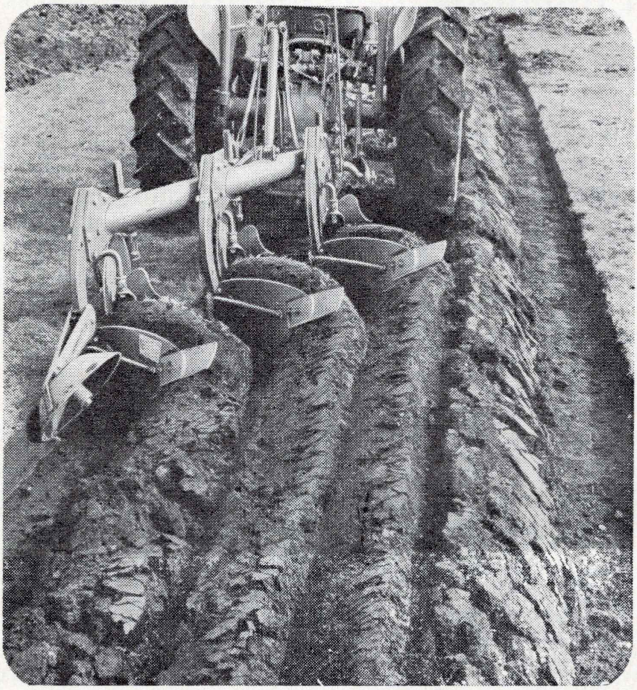
Ritual ploughing led by the Emperor of China was by far the biggest ceremony of its kind and was conducted throughout the Chinese empire by each rank of the territorial administration in the manner set by the Emperor. The historian, Edward Hahn, has contributed much to the history of plough lore. He wrote: "In the solemn ceremony by the Emperor of opening the field for tilling I see a shade or gleam of that primeval creed which has elevated field cultivation to the rites of a great Goddess and the plough to a sacred tool. It is not a far-fetched idea that the ruler of a country should participate in the most important activity for providing food, namely in cultivating the

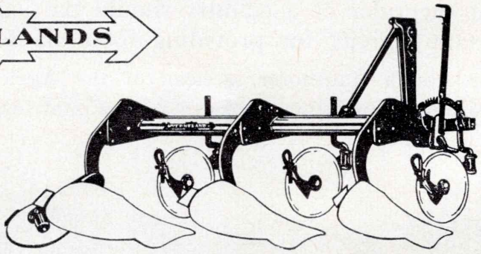
---

[*] Dr. Heinz Haushofer is head of the Agricultural Service of the German Foundation for Developing Countries.



Ritual ploughing in China, Manchu Dynasty, 19th century.





KVERNELANDS

The new Kverneland's Hydrein has got all features

Can be built up from 2 to 6 bodies.
All sizes can be fitted with safety devices.

KVERNELAND'S HYDREIN Simple-Sturdy-Efficient
KVERNALAND - NORWAY

MM
MacEwans Machinery
LIMITED
Branches throughout New Zealand

soil. It was practised by the Incas in Peru and by the rulers of the old Dar Fur empire in North-East Africa and also in Monomatapa on the South African East Coast, the legendary Eldorado of the Portugese".

Knowledge of the ploughing ceremonies headed by the Chinese emperors came to Europe in the 18th century. There are reports in embassy accounts, in accounts of religious missions and in books. Chinese customs became so much "en vogue" in Europe that even the French court opened the first New Year of the 18th century with a "Chinese Feast". Likewise, the imperial ploughing drew the attention of European rulers and of their councillors. Voltaire, the leader of thought in the enlightening age in France, said: "What should our European princes do when they hear of such examples? Admire and blush; but above all imitate!" Physiocratism was the great school of economic thinking which tried to adapt the Chinese example as a practicable system in the West. Quesnay, the physician-in-ordinary to King Louis XV of France, was its head; in his funeral sermon, he was referred to as the "Confucius of Europe". Consequently, it was only logical that King Louis XV also followed the Chinese example. The connection is quite evident from one of the most voluminous contemporary French agricultural handbooks (1761): "I see the emperors of China laying their hands to the

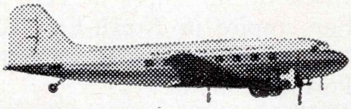
A ¾ to 1 yard Industrial Loader fitted with twin rams to compensating Bucket action.

Industrial Loaders - Angle Dozers for Crawler Tractors - Push-off Stackers - Silage Forks - Angle Blades - Ditch Cleaners - Fork Lifts and Timber Stackers - Clamp-type Bale Loader - Clamshells Buckrakes - Tip Sweeps - Loaders - Buckets.

- Contact any of our agents or call and discuss your problem with us.

JONES ENGINEERING LTD.

Main South Road, Templeton Christchurch
Telephone 497-277



M^T COOK Airlines

Day trips to the HERMITAGE at Mount Cook

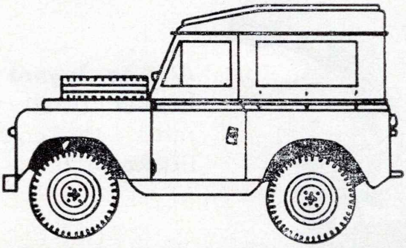
A round trip, Christchurch - Mt. Cook - Christchurch. Departs 10.40 a.m. - returns 5.45 p.m. by Mt. Cook Airlines. Once at the Hermitage you can lunch in luxury with a perfect view of Mt. Cook and the mountain scenery. Then fly out to the Tasman Glacier by ski plane and settle amongst vast perpetual snowfields. The heart of New Zealand's mountain beauty. Organise a group trip. Special day excursion.

PRICE £7-15-0 PER PERSON

MT COOK & SOUTHERN LAKES TOURIST Co Ltd

Cathedral Square (next Savoy Theatre) Christchurch

THE MT. COOK LILY



LAND-ROVER/CARTHY MOTORS

SALES · SERVICE · PARTS

Carthy Motors Ltd, 190 St. Asaph Street, Christchurch. Telephone 65-002
Timaru Car Exchange, Timaru ● Marlborough Motors Ltd, Blenheim
Drummond & Hurley Ltd, Ashburton
Brown Walters Ltd, Hokitika ● Betts Motors Ltd, Westport
Christchurch Car Exchange Ltd distributors
throughout Canterbury, Marlborough and Westland.

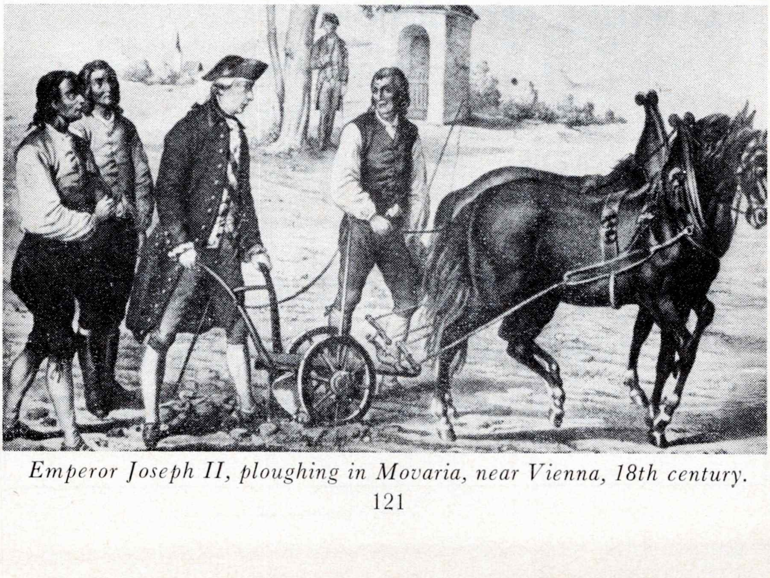
4

plough . . . " followed by: "It is known that the king (of France) has a plough at Trianon and that it gives him pleasure and that he does not despise to use it himself". In another handbook on agriculture it was claimed to teach a farm system which could be part of a youth's and "even of a prince's" ("et meme d'un prince") education. It was considered proper, therefore, that the Dauphin of France (who became King Louis XVI), should lead the ploughing in the presence of his father. This was in 1769 and there is an interesting contemporary engraving which records the occasion.

In the same year, on 19th August, 1769, there was an important ploughing event in Austria. The Emperor Joseph II dismounted from his horse not very far from Vienna and taking the plough handles from the hands of a farmer ploughed a few furrows. This event hit the imagination of the whole German-speaking population like a bomb. Its publicity effect contributed more to the introduction of agricultural reforms than thick volumes of books, because: "The Emperor ploughs . . . !"

S. von Frauendorfer, a renowned European agrarian historian of Vienna, called this performance by the Emperor "a fine gesture" in a "typical physiocratic attitude". It is evident, that this event was inspired by popular European thought at that time and also that this imperial ploughing had been further inspired by the Chinese example. The Emperor in the East and the Emperor in the West had each taken the lead with the plough from the same basic philosophical conviction, from the same political attitude and with comparably great effect.

Ritual ploughing from the earliest times has demonstrated



Emperor Joseph II, ploughing in Movaria, near Vienna, 18th century.

WALTER TAYLOR
AND COMPANY LTD.

(ESTABLISHED 80 YEARS)

COMMISSION WOOL SCOURERS

Situated in South Canterbury, the works processes every type of wool grown in New Zealand from the strong crossbreds to Merino for export to Europe and America.

W. Taylor & Co. Ltd. also undertake woolscouring and sorting for New Zealand mills including Alliance Textiles (N.Z.) Limited.

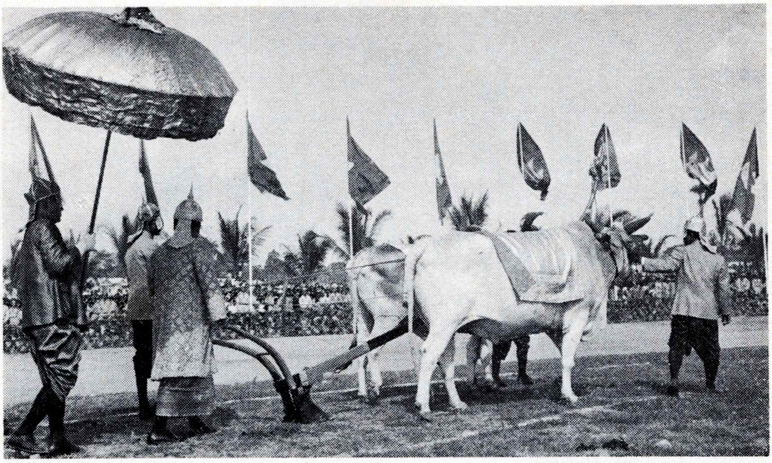
LANOLINE PRODUCTION

The Company produces a substantial amount of lanoline each year for the home market, Great Britain and America.

WALTER TAYLOR & CO. LTD.

COMMISSION WOOL SCOURERS

REDRUTH, TIMARU, SOUTH CANTERBURY, N.Z.
P.O. BOX 65, TIMARU TELEPHONE 3053, TIMARU



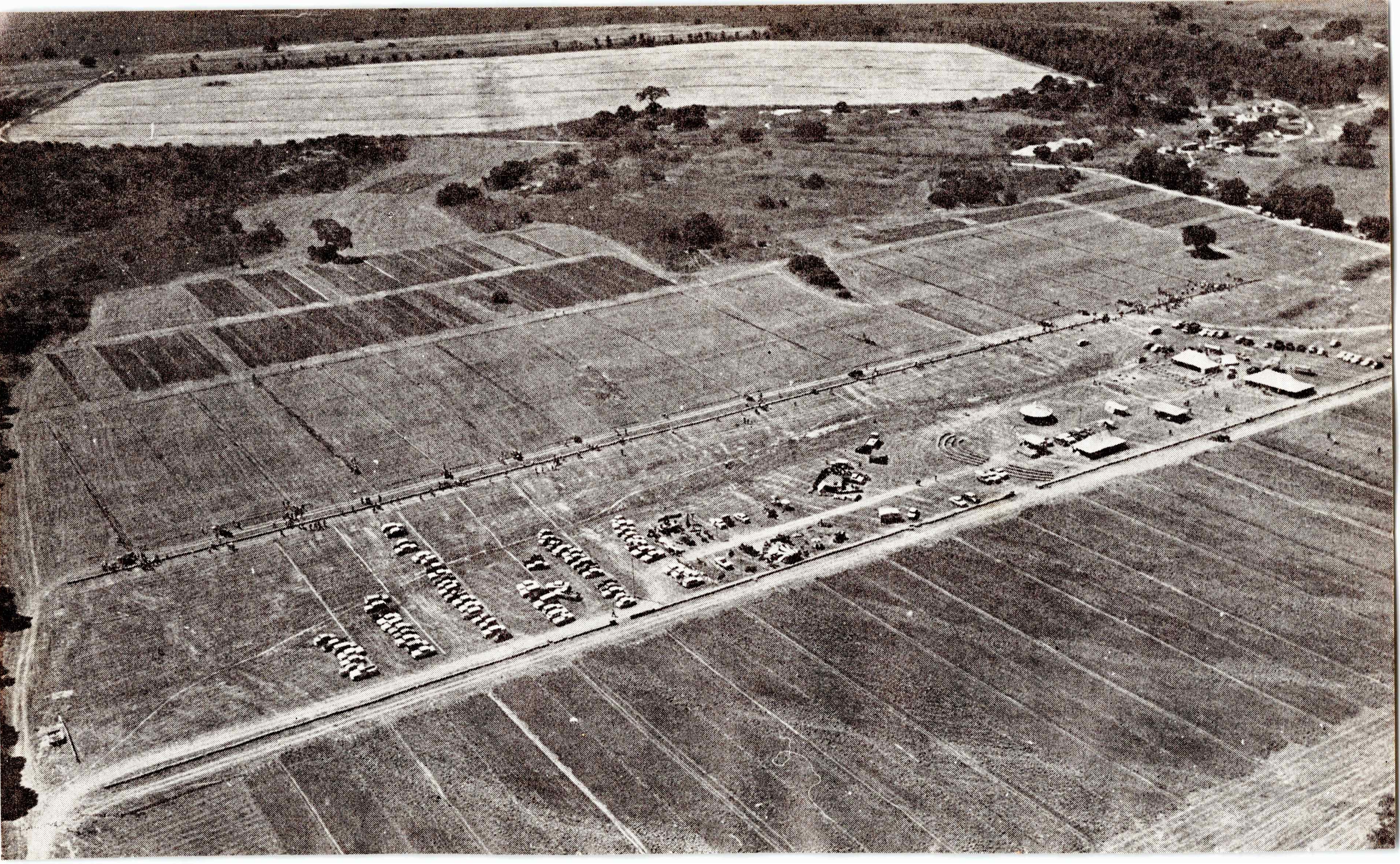
Prince Norodom Sihanouk, Cambodia, ploughing in 1964.

the importance of agriculture and, the plough being the primary tool of cultivation and, therefore, symbolic of the beginning of a life cycle, ceremonies with the plough have begged Heaven's blessings on the fields. However, also in these primeval times the plough had a ceremonial role at the end of life, too. The historian Paetzold found evidence of 34 ritual burials in which the plough had played a part, during his excavations in north-west Europe. He found ritual plough furrows which constituted "small fields for the deceased". Paetzold compared his discoveries with the instructions written in the Indian Sutras which give exact particulars of ritual ploughing as it was performed in India from the early stone age until the iron age. The number of furrows were defined as well as the prayers which the priests had to pray at each furrow. At the funeral of the dead prayers were said for the future fertility of the soil:

"Oh furrow, we adore you,
Be gracious and merciful to us,
That you may be fruitful for us".

Has all this completely vanished? Not entirely, there is a feast and ceremony of "Drawing the first furrow" in Cambodsha (Ceremonies de l'Ouverture du Sillon Sacre or Chrat Preah Neangkal). It is performed every year in accordance with Brahman rites by the chief of the state and in the presence of the Diplomatic Corps. Also, a few years ago, this ancient custom was revived in Thailand.

Since primitive times country people have in such ways expressed their everlasting wish for peace and fertility.



Welcome to Rhodesia, 1968

By Eric R. Linnell.

It is with considerable pleasure and enthusiasm that we in Rhodesia are planning the 15th World Ploughing Contest to be held in 1968.

The site selected is on the farm KENT, in the Norton Intensive Conservation Area, at an altitude of approximately 4,000 feet above sea level, and 35 miles from Salisbury, our capital city, on the main Bulawayo road.

The soils here are either loamy sands or sandy loams—or the association of granite sands and reddish brown dolorite clays — suitable for intensive mixed farming.

The farm KENT, of some 20,000 acres was opened up in 1913 and is now run in four sections — Irrigation, Tobacco, Maize and Cattle. The type of farming is typical of the area.

There are 850 breeding cows and 1,500 acres of maize are grown annually. Irrigation is carried out from a 600,000,000 gallon dam and, should 1968 be a year of low rainfall, we will be able to irrigate the plots and competitors will be able to demonstrate their skill to perfection. The grassland plots have been sown to Katambora Rhodes Grass.

First-class accommodation is available throughout Rhodesia, from the large city hotels to the Rest Camps in the Wild Life Reserves.

Salisbury has an international airport capable of handling the largest jets, and the port of Beira (Mozambique) is more than capable of handling both visitors and equipment in transit for Rhodesia.

A two-day Soil Conference with a tropical theme is being organised in conjunction with the Contest.

What is there to see in Rhodesia? In a short article one cannot mention all — from the "World's View", 8,000 feet up in the Eastern Highlands, with wonderful trout fishing, afforestation and deciduous fruit to the low veld at 2000 ft. adjoining the Sabi River, with its large acreage of irrigated sugar, wheat, cotton etc.; from the vast Kariba Dam (with its hydro-electric scheme) on the mighty Zambezi to the Victoria Falls, the largest in the world and completely unspoiled.

Close by the Victoria Falls is the Wankie Game Reserve where one can see lions, elephants, buffalos, rhinoceros, hyenas, leopards, giraffes and almost all other African wild-life in its natural habitat.

A typical Rhodesian Scene with Ploughing Match in Progress.

Near the Game Reserve, is Wankie Colliery, with the largest coal deposit in the world. Rhodesia's wealth in minerals is enormous — gold, emeralds, copper, chrome, asbestos, zinc, etc.

In Salisbury are the largest tobacco auction floors in the world, with the peculiar sing-song chant of the auctioneers, and where 2,000,000 lbs. of the world's finest Virginia Leaf is sold daily.

Historically, there is the mysterious Zimbabwe Ruins, Rhodes Grave and the Matopos, and the greatest collection of pre-historic art in the world — Rock Paintings.

Agriculturally, as in most other ways, Rhodesia is foremost of all African countries; but much has yet to be learned and much to be done. Conservation has been the theme for some time, not only of the soil, but of all natural resources. Correct ploughing plays a major part in soil conservation in the arable areas which are mainly contoured.

In Rhodesia we have two main seasons, the rainy (summer) season and the dry (winter) season. Autumn and Spring are not so easily definable.

In the Tribal Trust areas, late winter ploughing, with single mouldboard plough drawn by oxen, has been common practice. At this time the soil has been hard and dry and the oxen generally

NEW ZEALAND HORSE COVERS ARE THE BEST IN THE WORLD

JOHNSON & COUZINS HORSE COVERS ARE THE BEST IN NEW ZEALAND

JOHNSON & COUZINS LTD.

Saddlers & Canvas Workers
for 100 years

93 CASHEL STREET, CHRISTCHURCH
NEW ZEALAND

in poorish condition; the resulting crops, naturally, have been barely above subsistence level. This custom is now gradually giving way to late summer ploughing, while there is still moisture in the soil and the oxen are in good condition, and therefore a greater depth is obtained. "Contractor" ploughing is also increasing in these areas with tractors and disc ploughs.

In the European areas, trailed and mounted disc ploughs still predominate. Ploughing in these areas is done mostly in late summer. Winter ploughing is done mainly after late maturing crops such as maize, cotton etc., and on tobacco soils which are known for their late release of nitrogen.

The disc plough has been preferred to the mouldboard plough because of its better penetration in the drier soils, its ability to ride over hidden objects — rocks, roots, etc., — and because of the expense of the easily expendable share on the mouldboard plough.

The Rhodesian-made disc ploughs have the extended scraper fitted, which gives perfect inversion and burying of grass and trash and leaves a smoother finish. In fact, the concave disc acts as a fore — plough-coulter and the extended scraper as a cylindrical mouldboard.

In my opinion, the best seedbed is produced by mouldboard ploughing in the late summer, producing an unbroken flattish furrow to conserve moisture, followed by re-ploughing in the late winter with a disc plough in excess of 3.75 m.p.h. Usually no further cultivation is required.

During the winter months of the last four years, weekly tractor drivers' courses have been held. The theme — tractor maintenance, ploughing and plough setting. Mobile training units now tour the arable areas, and the effects of these measures together with ploughing competitions are most gratifying.

To quote T.V. Bulpin, author of "To the Banks of the Zambezi":— "In the whole continent of Africa, there is not a more picturesque part than the wild garden of trees and aloes and flowering plants than lies between the Limpopo and Zambezi Rivers, which modern man knows as Rhodesia. This is a wilderness to perfection; spacious sun-drenched; a jumble of trees and hillocks, rivers and mountains and wonderfully decorated rocks, stretched out from one far horizon to the other, beneath a heaven bluer than even the deepest ocean. There are 150,333 square miles to this wilderness and it is so rich in legend and history that every mile has at least a dozen stories to disclose

A warm and hearty welcome to Rhodesia awaits you in 1968.

NZBC

THE
NEW ZEALAND
BROADCASTING CORPORATION

24 Commercial Stations
13 Non-Commercial Stations
4 Television Channels

COMPLETE ADVERTISING
COVERAGE OF THE ENTIRE
COUNTRY
COPYWRITING & PRODUCTION
SERVICES AVAILABLE

Overseas Programme Service can supply, on request, New Zealand music and spoken-word programmes for overseas Broadcasting Organisations.

New Zealand Broadcasting Corporation
P.O. BOX 98,
WELLINGTON, N.Z.

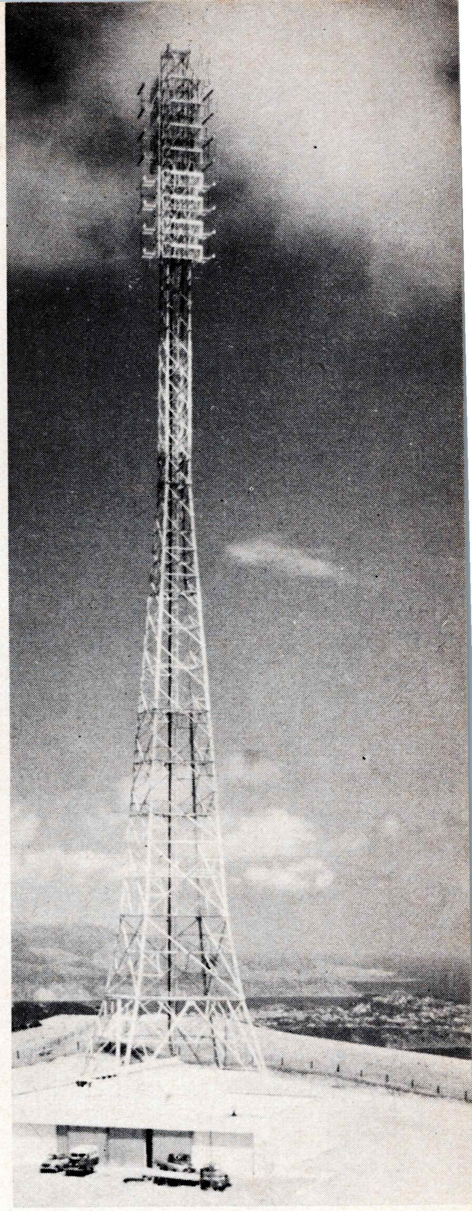
Broadcasting in New Zealand

The first transmission of "vocal and musical" items in New Zealand was on 5 December, 1921, when Dr. Robert Jack, of Otago University, was granted a permit to engage in research activities.

In 1959 the first experimental telecast was made from Auckland. In 1961 Channel 2 Auckland began telecasting programmes containing advertisements. Channel 3 Christchurch, Channel 1 Wellington, and Channel 2 Dunedin soon followed.

In a farming country such as New Zealand with a sparse and scattered population, the provincial station is an integral and vital part of the community. The isolated farmer depends on his radio for regular stock and weather reports and news, and by many country wives the announcers are thought of as personal friends, bringing contact with the outside world into a somewhat lonely existence.

The NZBC plays an important role in the stimulation and support of the arts in New Zealand; its two orchestras, the NZBC Symphony Orchestra and Little Symphony, tour nationally throughout the year. The Little Symphony was specially formed to take music to country centres, where halls and audiences are smaller than warrant the full Symphony. Top international concert artists frequently appear with the orchestras and as solo artists in NZBC sponsored tours, and at the other end of the scale, popular, jazz, and folk artists have toured as well.



The NZBC's future must embrace expansion in both radio and television, and a continuation of its tradition of service to the people, the arts, and the business of New Zealand.

A Layman's Guide To Good Ploughing

Ploughing with a six-horse team.

A good job of ploughing depends upon good plough setting. A ploughman must first choose the right equipment for his task and then he must thoroughly understand every adjustment of it to the smallest degree. He must know his plough.

Only with practice and experience can anyone become a good ploughman but it is not difficult for even a layman to recognise good ploughing although it may not be easy for him to distinguish between good plots when the general standard of work is high.

From the view on the headland the spectator should regard the following points as an indication of good work:

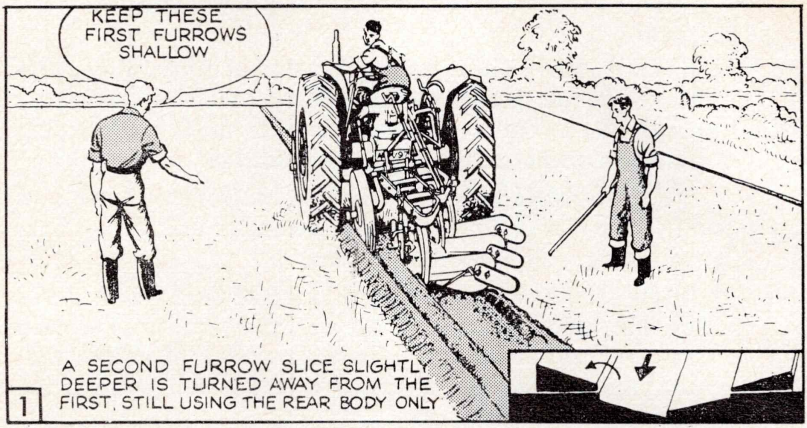
1. THE OPENING SPLIT should be a clean straight double cut with no unturned land left in the middle.
2. THE CROWN, or start of the ploughing, is made over the split. It should not be flat nor should it be high. There should be no gap between the furrow slices forming the crown; they should be closely laid together thus completely sealing the former surface vegetation and straw which has been turned under. The completed crown of 12 furrow slices on each side should be level with the rest of the ploughing. The furrow slices should lie close against each other and all should be in conformity.

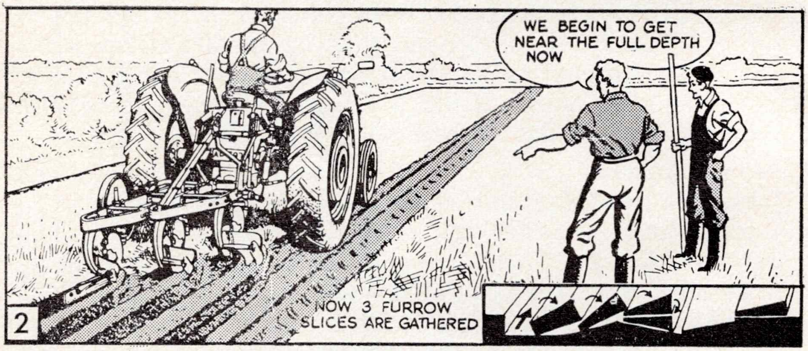
3. WEED CONTROL is recognised by the fact that no stubble or surface vegetation is visible between the furrow slices. All furrows should be of equal width and of even depth.
4. THE SEED-BED is judged by the quantity of soil presented by the plough on each furrow slice. If the furrow slices lie too flat it will be difficult to make a tilth using harrows in the next cultivation operation.
5. THE FINISH must be straight, narrow and shallow. If it is too wide and too deep then after harrowing there will remain a hollow in the field.
6. THE INS AND OUTS are where the plough enters and exits on the headlands at the beginning and end of each run. They should be neat and regular to ensure that no land will be left unturned or made rough when the headlands are ploughed.
7. THE GENERAL APPEARANCE of the ploughed plot should be one of straight, uniform, rounded furrow slices. They should all be the same and should not appear as separate pairs. If they can be recognised as pairs then the plough has not been set correctly.

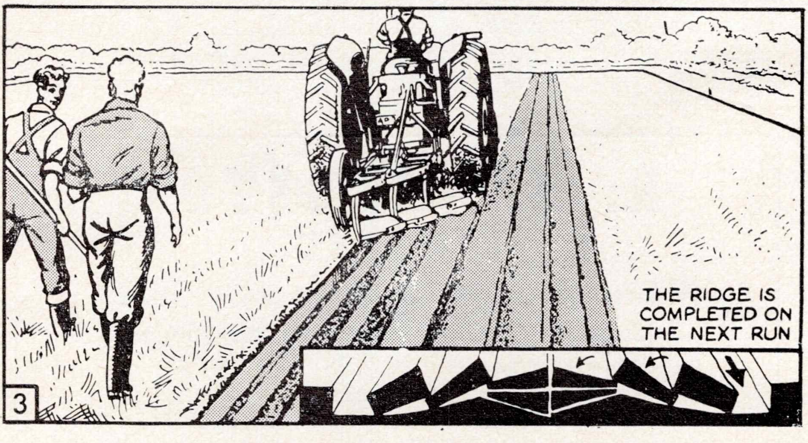
When ploughing properly the tractor runs smoothly, without the engine labouring and without wheelspin. It virtually steers itself because the whole unit of plough and tractor is "in balance". If the front wheels of the tractor are running, or pushing, at an angle instead of being in line with the rear wheels, causing the ploughman to keep pressure on his steering wheel then this is a sure sign that the plough and tractor are not set properly. Then the outfit is straining and wearing, using fuel and time uneconomically, doing a poor costly job of work and, at the same time, wearing out the ploughman's patience. — A.H.

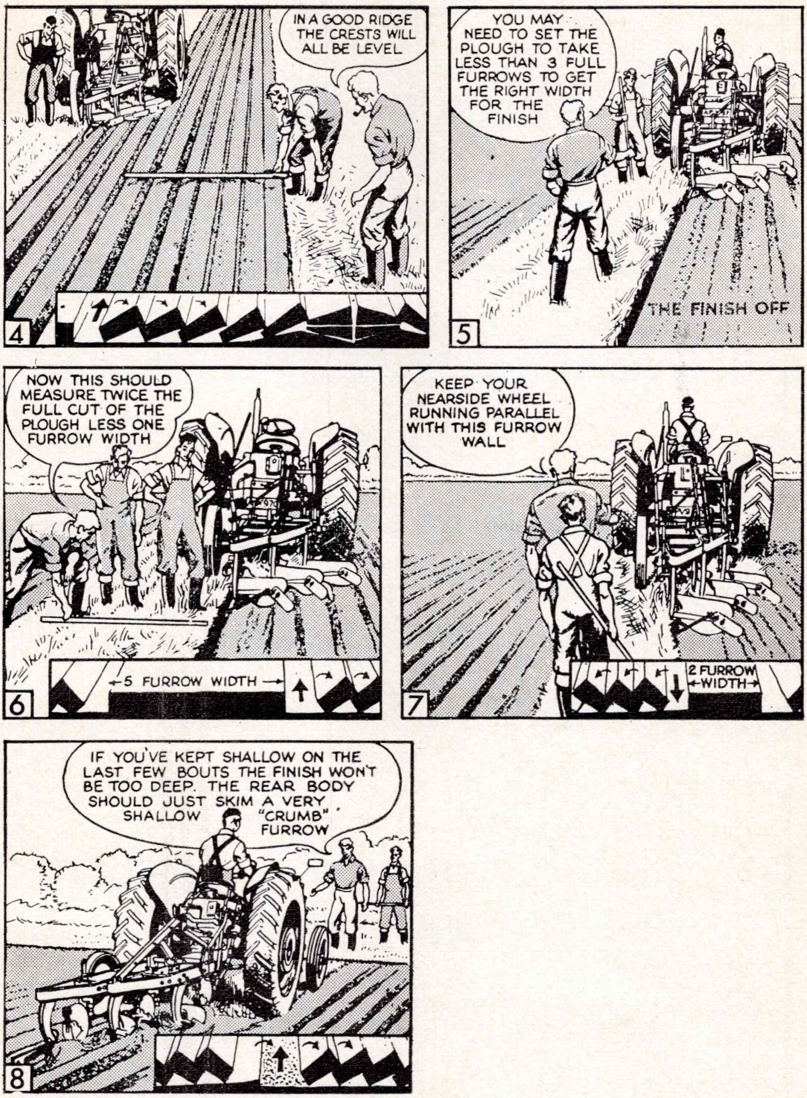
R. J. KINGSTON
LIMITED
Manufacturers of farm machinery
Ploughshares — 'Pearlite' cast, and steel ploughshare
'Cambridge' bearings and roller rings
Available from all stock and station agents
15 PENN PLACE (off Blenheim Road) CHRISTCHURCH
PHONE 41-841

Ploughing step by step


KEEP THESE FIRST FURROWS SHALLOW
A SECOND FURROW SLICE SLIGHTLY DEEPER IS TURNED AWAY FROM THE FIRST, STILL USING THE REAR BODY ONLY
1


WE BEGIN TO GET NEAR THE FULL DEPTH NOW
NOW 3 FURROW SLICES ARE GATHERED
2


THE RIDGE IS COMPLETED ON THE NEXT RUN
3


IN A GOOD RIDGE THE CRESTS WILL ALL BE LEVEL
4
YOU MAY NEED TO SET THE PLOUGH TO TAKE LESS THAN 3 FULL FURROWS TO GET THE RIGHT WIDTH FOR THE FINISH
THE FINISH OFF
5
NOW THIS SHOULD MEASURE TWICE THE FULL CUT OF THE PLOUGH LESS ONE FURROW WIDTH
←5 FURROW WIDTH→
6
KEEP YOUR NEARSIDE WHEEL RUNNING PARALLEL WITH THIS FURROW WALL
2 FURROW ←WIDTH→
7
IF YOU'VE KEPT SHALLOW ON THE LAST FEW BOUTS THE FINISH WON'T BE TOO DEEP. THE REAR BODY SHOULD JUST SKIM A VERY SHALLOW "CRUMB" FURROW
8

Reproduced by courtesy of "Power Farming"

F. COOPER LIMITED

Seed Growers & Merchants

Growers and Exporters of Highest Quality Garden Seed Peas and Vegetable Seeds.

*

Specialists in the supply of varieties for the freezing and canning industries.

*

EXTRA care in PLOUGHING pays dividends with following crops but as an added GUARANTEE — INSIST ON COOPERS SEEDS.

F. COOPER LIMITED

Cables — "GROWSEEDS"

P.O. Box 93, Wellington, New Zealand

RENOWNED FOR QUALITY THROUGHOUT THE WORLD

Glossary of ploughing terms

This list is by no means complete.

High Cut, High Crested, or Oat Seed Furrow—A type of ploughing for a specific purpose, viz., upon which to sow cereal seed by hand. The furrows are narrow and stand tightly packed together in the shape of equilateral triangles each with a sharp comb so that with a stroke of the harrows a good seedbed is made to cover the seed in the seams.

The High Cut Plough has a long mouldboard with a gentle turn and slightly convex curve. The wing of the share is raised and the coulter set at such an angle as to produce a furrow with a sharp comb. This is known as cut and the sharper the angle of the cutting face of the coulter to the cutting face of the share, the higher the cut.

General Purpose Ploughing—There is no precise definition for this type of work since, as the description suggests, it is not specially used for any specific purpose and is adaptable to lea, stubble, and after root-crops.

Whole Work—means that the sod is unbroken.

Broken Work—(also referred to as Broken Furrow Ploughing and as Broken Rib Work)—means that the sod is broken or cut with fins or knives attached to the mouldboard. The cutting can be made to give the appearance of a rib or miniature furrow on the upturned sod. Broken work is thus equivalent to whole work which has had a stroke with the harrows.

Trailer Plough—a tractor plough on wheels which is hitched to the tractor and towed.

Mounted Plough—a plough which is fitted on to the tractor and is lowered into the ground by the tractor's hydraulic lift system.

Semi-Mounted Plough—a plough which is fitted on to the tractor but when lowered in the ploughing position by the hydraulic lift system is also supported by a wheel.

The Semi-Digger Plough has a slightly convex and much shorter mouldboard than the High Cut Plough. It is the general purpose type of plough on account of its adaptability for ploughing lea, stubble, or after roots. The share is made in two parts, viz.: wing and point. These can be changed to provide cut when ploughing grassland.

The Digger Plough has a short and abrupt mouldboard with a definite concave surface. Digger bodies are for deep-ploughing. The furrow slice produced is broken and, with the aid of the fitted tailpiece, is almost completely inverted.

The Disc Plough is fitted with a large revolving saucer-shaped disc instead of a mouldboard and is designed for ploughing hard ground and ploughing deep.

Moudlboard (sometimes called the Breast) is that part of the plough which turns over the sod, thus leaving the furrow.

Coulter—knife or cutter attached to the beam ahead of the mouldboard which makes the vertical cut when ploughing.
Disc—thin, flat revolving disc used instead of a coulter.

Beam—the main member in the structure of the plough, running from front to back, and to which the other parts are attached.

Skimmer—(also known as Jointer)—an attachment like a miniature plough fixed to the beam ahead of the coulter and set to skim a shallow, narrow furrow in line with the coulter so that when the furrow is turned all grass or stubble is covered.

Wing and Point—the two parts comprising the share on a semi-digger plough.
Share—(also known as Sock)—the principal cutting part of the plough fitted to the leading end of the mouldboard, making the horizontal cut when ploughing. The type of share varies the style of the ploughing.

Knives and Fins—are attachments to the rear end of the mouldboard for the purpose of breaking or slicing the sod as it is turned over.

Tailpiece—is a flat piece of steel fitted to protrude beyond the end of the mouldboard of semi-digger and digger ploughs to lay the sod well over as it is turned.
Cut—can be described as the steepness of the crest of the furrow. (See under High Cut Plough).

Comb—(also known as Arris)—the apex or top angle of the sod.

Tear—is the width of the top of the furrow when it is ploughed so as not to have a high comb, and the term is particularly applied to high cut work as ploughed in Scotland.

Furrow—the space left when the sod has been turned over.

Depth and Width—refer to dimensions of the furrow.

Seed Bed—(also known as Flesh)—is defined as soil made available for working by subsequent cultivations into a suitable tilth in which to sow.

Land—is the portion to be ploughed. To "give a plough more land" is to bite deeper into the portion being turned, thus widening the furrow. Land is also the plot to be turned and is also known as the Shut, the Shoot, or the Shot.

Scratch—(also known as Scratch Furrows or Scribesod)—two light furrows or shallow cuttings marking the setting-out or opening of a plot for ploughing and which form the base of the first two crown furrows.

Rippling—same as Scratch, being the mark left by the plough when drawn along the surface, but usually applied to the guide mark thus made along the headlands.

Opening—where the ploughing is begun.

Setting Out—same as the opening. To set out the plot for ploughing is to take the necessary measurements and line up the sighting poles.

Crown—(otherwise known as , Ridge Middle, Opening, Cop or Centre)—comprises the scratch and the first three heavy furrows on each side of the opening.

Headland—the land at the end of the furrows upon which the plough is turned round in order to plough back again in the opposite direction.

Gather—to plough around the opening, thus laying the furrows in towards each other, turning to the right at the headlands.

Cast Off—(also known as Split or Throw Out)—refers to that part of the land which is turned towards a neighbour's plot, i.e., away from the opening of one's own plot; turning to the left at the headlands.

Ins—the point at which the plough is put into the land at the headland rippling.
Outs—the point at which the plough is lifted out at the headland rippling after having ploughed a furrow.

Finish—constitutes the last three rounds and the sole furrow.

Sole Furrow—(also known as Scolt)—the last clean cut sod in a finish.

Round—two furrows, one each side of the opening or on each side of the land still to be ploughed when casting off (i.e., splitting), having ploughed from one headland to the other and back again.

Green Furrows—(also known as Standing Furrows)—those remaining unploughed as the finish is approached.

Packing or Firmness—means that the furrows are properly and evenly turned and closed; placed solidly together with no gaps between them and no air spaces.

Seams—the angles, or V-shaped portion where the sods touch each other as opposed to the apex.

Body—means that the furrow has sufficient depth for its width.

Butts—are the short furrows in a plot of unequal dimensions where the land runs to an angle or awkward corner piece.

Cheeking—means tilting to the left or land side of the plough.

Boarding—means tilting to the right, i.e., putting more pressure on the mouldboard.

Tweel—a term used in high-cut work, indicating grass well covered (i.e., buried), yet furrows not turned over too much but showing nearly as much coulter face as share face or, in effect, being almost the shape of an equilateral triangle.

Coulter Face—the surface of the sod which is cut by the coulter.

Share Face—that surface of the sod which is cut by the sock (ploughshare), i.e., the underside, which when turned up becomes the left side of the sod, and the coulter face is the right side looking in the direction of travel.

Sod (or slice)—is the strip cut out of the land and turned over, thus leaving the furrow.

Grass, Lea or Sod Ploughing—means the ploughing of grassland.

Boats, Seamers and Press Wheels—are not a part of the plough but are subsidiary pieces of equipment used on the upturned furrow as an aid to improving its appearance and perfecting its shape.

FARMERS! Remember

THE FARMERS' MUTUAL INSURANCE ASSOCIATION

The Specialists in Rural Fire and Accident Insurance

FOUNDED IN 1904
BY FARMERS FOR FARMERS

THE FARMERS' MUTUAL HAS THE OFFICIAL ENDORSEMENT OF THE FEDERATED FARMERS' PROVINCIAL EXECUTIVES IN THE SOUTH ISLAND
and
FEDERATED FARMERS ARE AGENTS FOR THE FARMERS' MUTUAL

Christchurch Branch:
6 ARMAGH COURT (Next FEDERATED FARMERS)
Phone 64-837 (2 lines) **P.O. Box 1711**

1967
NEW ZEALAND PLOUGHING CONTEST

11th May 1967

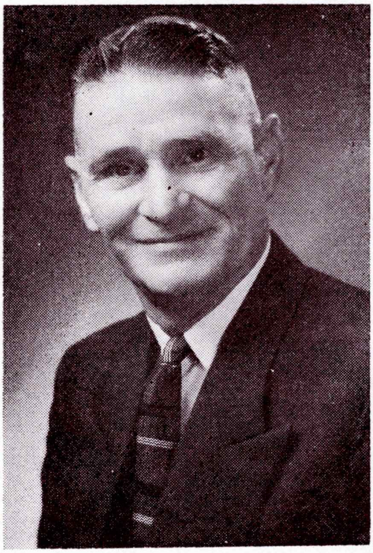
PREBBLETON - BROADFIELDS

CANTERBURY

for the

Atlantic
Silver Plough

SPONSORED BY THE ATLANTIC UNION OIL CO. N.Z. LTD.



E. A. E. FAIRHALL
President
N.Z. Ploughing Association

R. A. TRIGGS
Secretary-Treasurer
N.Z. Ploughing Association

The New Zealand Ploughing Association

(Incorporated)

Patron:

The Rt. Hon. K. J. HOLYOAKE

President:

Mr E. A. E. FAIRHALL, Blenheim

Immediate Past President:

Mr W. A. THOMSON, Kelso

Vice-Presidents:

Mr J. R. MURRAY, Hamilton
Mr J. S. MARSHALL, Jun., Invercargill

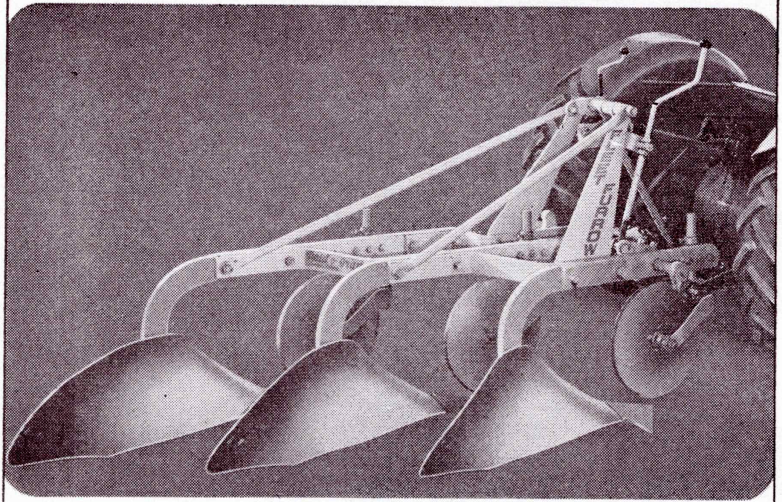
Committee

Mr W. D. BUICK, Masterton
Mr T. F. CARTER, Christchurch
Mr G. L. A. DONALD, Takapau
Mr G. C. HURST, Oamaru
Mr H. A. MAGSON, Rakaia
Mr W. G. MILLER, Gore
Mr S. J. TIFFEN, Havelock North

Secretary-Treasurer:

Mr R. A. TRIGGS, 15 Horopito Road, Waikanae.

WORK WITH A WINNER —



A REID & GRAY
FLEET FURROW PLOUGH

You may not be looking for a showpiece like a match plough—but you demand and GET the same reliability of performance from any Reid and Gray plough. Take the 'Fleet Furrow' — one of a breed tested and proven by tens of thousands of farmers. Reliable and versatile, the Reid and Gray Fleet Furrow is the obvious choice for fast ploughing over even or uneven ground.

NEW ZEALAND DISTRIBUTORS

KVERNELANDS

AGRICULTURAL MACHINERY

MM

MacEwans Machinery
LIMITED

Head Office: 109 Featherston St., Wellington
Branches throughout New Zealand

The New Zealand Ploughing Association (Inc.)

The New Zealand Ploughing Championship is sponsored by the Atlantic Union Oil Co., with whom the N.Z.P.A. maintains the closest liaison in the organisation of the contest each year.

The Rules and Conditions of Entry are drawn up by the N.Z.P.A. and they are based on the rules applicable to the World Ploughing Contest, which is held in a different country each year.

The New Zealand Contest is under the control of the N.Z.P.A. and it appoints each year an Association to stage the final under the jurisdiction of the N.Z.P.A.

Applications are called for each year from financial affiliated organisations desirous of conducting a Qualifying Event. Twenty-two of these events are held throughout the country each year and the winners participate in the final. The winner of the final is then sent to represent New Zealand in the World Ploughing Contest, the New Zealand Association paying the travelling expenses. The sponsors provide cash prizes for the remaining four of the first five placings in the final and for the first and second placings in each Qualifying Event. Free fuel and oil is supplied by the sponsors to all tractors competing in Qualifying Events and the Final.

The N.Z.P.A. is affiliated to the World Ploughing Organisation which has its headquarters in England. Each affiliated country pays a minimum annual subscription of £100.

The W.P.O., as it is commonly known, controls the World Contest each year. It has a Board of Directors composed of one representative from each affiliated country. The Board, now numbering 20, formulates the rules and the general policies for the world activities of the organisation.

At the present time the N.Z.P.A. is represented on the Board by Mr E. A. Fairhall and it is hoped we will be able to have representation at Board meetings overseas each year. This is important and is the only way of ensuring that New Zealand can take its part in the framing of W.P.O. policies affecting national ploughing contests throughout the world.

1967 Atlantic Silver Plough

The New Zealand Association's activities are controlled by the Executive Committee comprising representatives from active ploughing interests throughout the country. Its members give their services voluntarily.

The Atlantic Silver Plough awarded to the New Zealand winner is modelled on an antique plough, the first ever used in the Dominion. It fulfills the wish of the first man to plough the first furrow in New Zealand's soil.

On the historic Wednesday, May 3, 1820, the missionary, the Rev. J. G. Butler wrote in his diary: 'I trust that this auspicious day will be remembered with gratitude and its anniversary kept by ages yet unknown'. At Keri Keri, in the Bay of Islands he had that day walked behind the team of six bullocks drawing the first plough.

The ploughing trophy, the Atlantic Silver Plough, is an exact replica of the plough he used, which is preserved in the Old Colonists' Museum in Auckland. With the addition of a ploughshare and a couple of inches of coulter it would still be capable of turning a furrow after the intervening 140 years.

A facsimile of the page from the Rev. Butler's diary is mounted on the Kauri plinth which supports the silver model of that first plough.

The sponsors of the national contest were able to locate the plough and the diary entry with the help of the Turnbull Library.

Photographs were despatched to the Sheffield silversmiths, Walker and Hall Ltd., and their craftsmen produced the model in oxidised silver.

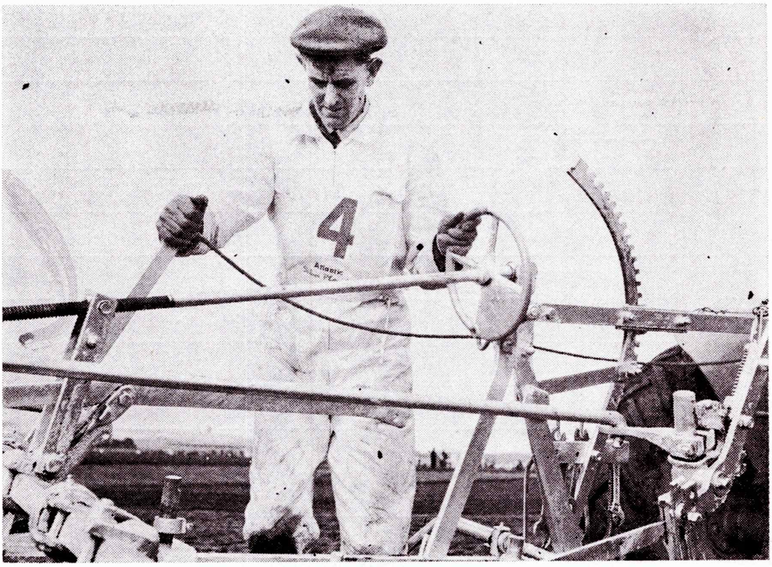
The wooden plinth on which the model is mounted has a strong association with early New Zealand. Cut from a kauri pillar from the 80-year-old building of J. B. McEwan in Wellington, it most probably came from the huge kauri forests of the North that the Rev. Butler knew, and are no more today.

The late E. Mervyn Taylor, distinguished wood engraver and an authority on Maori art and legend, engraved the plates and carved the frieze at the base which incorporates the agricultural tools of the Maori — the ko and the pinaki.

The ploughmen displaying their craft today can with satisfaction recall the final words of the Rev. Butler: 'Every heart seemed to rejoice on this occasion — I hope it will still continue to increase and in a short time produce an abundant harvest'.

The New Zealand Champion Ploughman each year retains in his possession a minature of the trophy which was first competed for at Oamaru on 28 July, 1956.

1956—**J. C. Brooker,** Hawarden.
1957—**R. J. Heenan,** Winton.
1958—**R. M. Kingsbury,** Ashburton.
1959—**S. M. Allison,** Milton.
1960—**B. J. McPhedran,** Timaru.
1961—**H. A. Magson,** Rakaia.
1962—**W. A. Simpson,** Oamaru.
1963—**C. E. Read,** West Melton.
1964—**E. J. Croy,** Ashburton.
1965—**H. A. Walker,** Edendale.
1966—**S. M. Allison,** Milton.



1966 Silver Plough Champion, Stewart Allison — who is representing New Zealand at this contest.

THE NEW ZEALAND

Atlantic

SPONSORED BY THE ATLANTIC

PLOT No.	NAME AND ADDRESS		QUALIFYING EVENT
	A. WALLACE	Cambridge	Reporoa-Rotorua
	N. WYMER	Waiuku	South Auckland
	S. K. REILLY	Howick	Waikato
	E. HUNT	Palm. North	Takapau
	I. JORDAN	Blenheim	Wairarapa
	R. LUKIES	Carterton	Upper Hutt
	P. D. CARTER	Christchurch	Marlborough
	P. McCALLUM	Blenheim	Nelson
	E. J. CROY	Ashburton	Courtenay-Paparua
	D. BROWN	Temuka	Geraldine
	W. WINTER	Rangiora	Hinds
	W. SIMPSON	Oamaru	Methven
	G. CARTER	Christchurch	Rakaia
	M. DAVISON	Rolleston	North Canterbury Y.F.C.
	J. R. BROWN	Nelson	North Canterbury P.M.A.
	I. WINTER	Rangiora	Waimate/Papakaio Y.F.C.
	J. STALKER	Christchurch	
	A. JOHNSTON	Rakaia	
	S. M. ALLISON	Milton	Waimea Plains
	I. B. BLAIR	Outram	West Otago
	K. J. TAYLOR	Clinton	Southland Champ.
	J. C. KYLE	Timaru	Taeri
	M. HEENAN	Invercargill	Tokomairiro

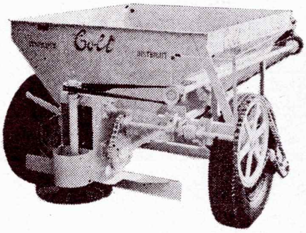
PLOUGHING CHAMPIONSHIP

Silver Plough

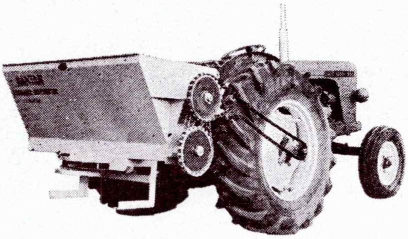
UNION OIL CO. (N.Z.) LTD.

Opening Split	Crown	Weed Control	Prospective Seed Bed	Finish	Ins and Outs	Appearance General	TOTAL
10	30	40	40	40	10	30	200

'UNIVERSAL' BULK FERTILISER DISTRIBUTOR This unit is quickly fitted to any truck deck or chassis and is especially designed to handle bulk super as well as lime. Extra heavy duty dragout chain and single open type spinner ensures trouble free operation in all conditions. Optional extras include: Fittings for handling bulk grain and bagging off attachments. Easy lift stand permits rapid removal. *We also manufacture truck fertilizer distributors to contractors specifications*



THE HEAVY DUTY 'COLT' 2 TON MODEL This trailer model with extra heavy duty chain and scraper feed driven by land wheel, is designed to ensure even feed to spinner at all forward speeds, ensuring maximum efficiency for steep hill country work. P.T.O. or motor driven spinner. Sowing range: 1 cwt. super to 2 ton of lime.



THE 'BANTAM' 3-POINT LINKAGE 7 CWT. FERTILISER DISTRIBUTOR Quickly and easily fitted to any tractor. Eliminates any bridging or packing of materials, **the only mounted spinner type distributor with a positive feed.** This ensures an even 22ft coverage at all times. Sowing range is from ½ cwt. to 1 ton per acre.

UNIVERSAL
BULK LIME EQUIPMENT LTD

85 HARMAN ST
ADDINGTON
P.O. BOX 1054
CHRISTCHURCH
NEW ZEALAND
PHONE 30-154

1967 ATLANTIC SILVER PLOUGH CONTEST OFFICIALS

Judges —

Mr J. A. Lindsay, "Lochiel", Invercargill.
Mr E. Gutschlag, Gore.
Mr D. G. Stewart, Rosebank, Rakaia.
Mr C. E. Read, Withells Road, Christchurch.
Mr W. D. Buick, Pahanhau, Masterton.

Reserve Judges —

Mr F. C. King, Papakura.
Mr J. G. Carter, Christchurch.
Mr J. A. Miller, Maungatua, Outram.

Starter - Timekeeper —

Mr A. G. Dawson, Taradale, Hawke's Bay.
Mr T. F. Carter, Greenpark, Christchurch.

Parade Marshall —

Mr G. L. A. Donald, Takapau, Hawke's Bay.

Head Stewards —

Mr W. A. Thomson, Kelso, Heriot.
Mr J. A. Murray, Hamilton.

Scrutineers —

Mr J. Marshall, Waianiwa, Invercargill.
Mr S. Tiffen, Elmshell, Havelock North.

P.O. Box 6001
Upper Riccarton

Telephone Office 499-935
Private Phone 46-412
(C. H. Ferguson)

Independent Tractor
& Implement Co.

726-728 MAIN SOUTH ROAD

Importers of Crawler and Wheel Tractors and General Farm Machinery New and Used.
Agents for Universal Bulk Lime and Grain Handling Equipment and Zetor Tractors.

You get more for your money at the BNZ

You have a choice of 9 different interest-earning accounts at the BNZ Trading and Savings Banks (they're all serviced free). Choose the account that suits you best.

The BNZ has more depositors (so there's more money available to lend if you need it).

All profits stay in NZ as the BNZ is the only wholly NZ owned Trading/Savings Bank.

BANK AND SAVE WITH BNZ

BM 2·6

Prizes

AWARDS TO CONTESTANTS AT NEW ZEALAND PLOUGHING CHAMPIONSHIPS

The following prizes are offered to the entrants by the Sponsors:—

Championships:

(a) 1st prize—Atlantic Silver Plough (to be held for one year).
Miniature Atlantic Silver Plough (to be held retained by the winner).
Cash prize of £100.
2nd prize—£50.
3rd prize—£25.
4th prize—£15.
5th prize—£10.

Qualifying Events:

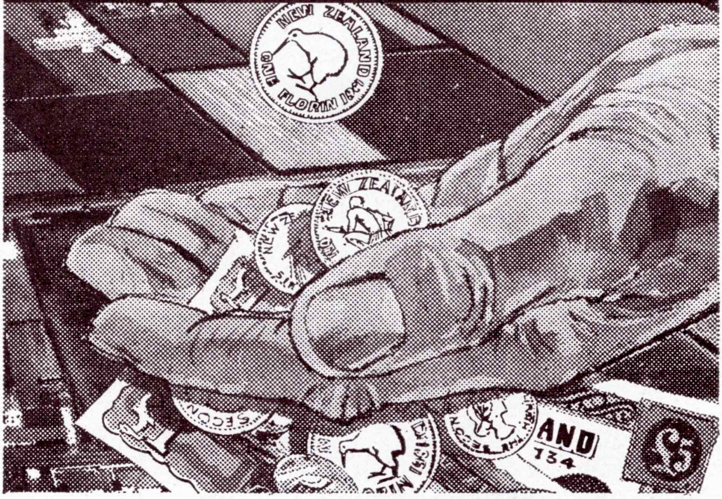
(b) 1st prize—£10.
2nd prize—£5.
In addition all finalists will receive a basic travel grant of £5, contestants having to travel 200 miles or more (return) will receive an additional £5 and all North Island finalists receive an additional £30.

(c) The New Zealand Ploughing Association (Inc.) will provide a free return air trip to Rhodesia for the winner of the New Zealand final to participate in the 1968 World Contest.

(d) In addition to the above prizes, contestants under the age of 25 compete for the Ford Trophy. This is awarded by the Ford Co., to the competitor in the final under the age of 25 years receiving the highest number of points.

(e) The only other prize which may be offered for Qualifying events is a cash prize donated from the local Association's own funds.

DON'T LET PROFITS
slip through your fingers



More fertiliser + More stock = MORE PROFIT

USE K.P. FERTILISERS

"A fertiliser for every purpose"

Kempthorne Prosser & Co's
NEW ZEALAND DRUG CO. LTD.
FERTILISER WORKS AT AUCKLAND • WANGANUI • CHRISTCHURCH

KP2/CH.

Rules for Ploughing

TYPE OF LAND:

Each competitor will be required to plough one plot of grassland (pasture).

Note: Grassland ploughing should be regarded as being for a grain crop.

AREA TO BE PLOUGHED:

(a) In Qualifying Events and also in the New Zealand Ploughing Championship Final the size of the plot to be ploughed shall measure approximately half an acre (one chain in width and five chains in length if practicable).

(b) The draw for plots will take place the night before the Final at the Competitors Briefing Meeting and there will be only one draw.

TIME ALLOWED:

(a) The time allowed for the ploughing of the half-acre plot will be three hours and proportionately less for smaller plots in the Qualifying Events. Should a competitor find that he will have to wait on his neighbour before he can "throw out" he may, at his own discretion, and subject to the approval of the Head Stewards, commence to cast off against the border of his plot.

(b) When the finishing signal is fired a competitor may only complete the furrow he is at that moment ploughing and he must do so without stopping and dismounting.

A competitor has not commenced a furrow unless the front wheels of the tractor are across the scratch mark indicating the land's end.

(c) Extra time may be requested only upon a competitor giving notice to the Stewards of a mechanical breakdown or situation beyond the control of the competitor or the organisers. Extra time will then only be granted after consultation with, and the agreement of, the Head Stewards who will advise the Judges.

TRACTORS:

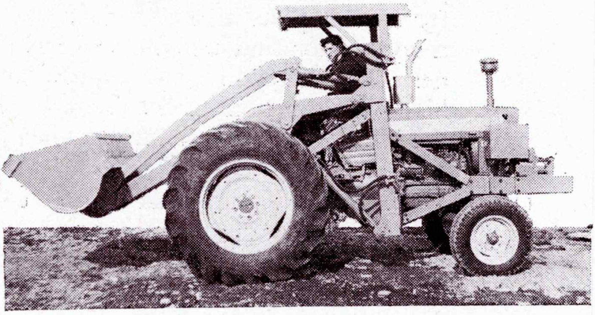
(a) The New Zealand Ploughing Championship Quali-

'BEGG' **New Zealand's Premier Loaders. Chosen by 1500 Farmers and Contractors for their unrivalled**

VALUE FOR MONEY

Loaders For Farm Use

Loaders For Industrial Use



A COMPREHENSIVE RANGE OF ATTACHMENTS TO HANDLE HAY OR SILAGE AVAILABLE.

Manufactured and Distributed by —

SOUTH ISLAND
G. N. BEGG Engineering Co. Ltd.
Drummond, Southland

NORTH ISLAND
BEGG and Allen Ltd.
Box 14, Manurewa

fying Events will be limited to wheel tractor ploughing.

(b) A ploughman must not ride on his plough or tractor in such a way as may be considered dangerous by the Stewards. Any direction from the Stewards in this respect must be observed.

(c) In the interests of safety, tractors must be driven from the seat.

TYPE OF PLOUGH:

(a) All contests will be limited to tractor 2-furrow mouldboard ploughs until further notice. The ploughs shall be either mounted or trailer models (for ploughing in "lands") and shall be fitted with skimmers.

No other extraneous attachments will be allowed other than a flat tailpiece.

(b) Plough bodies must not be removed or raised out of position or otherwise adjusted in such a way as to make the plough in effect a single-furrow mouldboard plough during the course of the contest. This rule does not preclude using only one body in making the opening and in making the finish.

(c) While the onus is on the contestant to ensure that his plough complies, the organisation conducting a Qualifying Event must arrange for inspection by specially appointed Inspectors before the event commences.

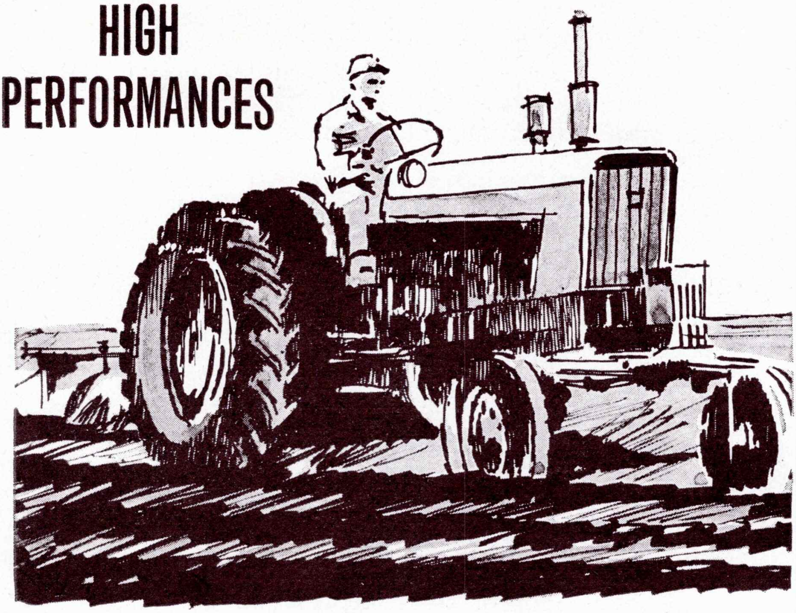
The New Zealand Ploughing Association will appoint Inspectors for the final.

(d) A plough approved for a Qualifying Event may not necessarily be accepted for the final.

SEMI DIGGER PLOUGHING:

Semi-digger ploughing can be described as an unbroken furrow produced by a "screw shaped" mouldboard. The shape of the furrow slice must be recognisable throughout the whole length of the plot. The semi-digger plough has the effect of cutting and turning the furrow slice with a screw-like motion.

CONSISTENTLY HIGH PERFORMANCES



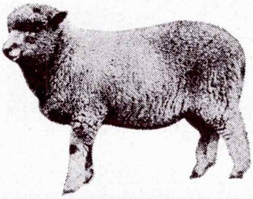
South Otago has given New Zealand its Champion Ploughman **twice** and it produces some of New Zealand's choicest lambs. The FINEGAND FREEZING WORKS, at Balclutha, established in 1910, handles more than 1,000,000 sheep and lambs each season and is regarded as one of the most up-to-date Works for its size in the country. "SOCOLD" LAMB from South Otago is well-known in the UNITED KINGDOM, CANADA, U.S.A. and in some of the newer overseas lamb markets. "SOCOLD" lamb pelts have an enviable reputation in world pelt markets; "SOCOLD" tallow is a well-known brand in India, Japan, Africa and England. In fact all "SOCOLD" products are highly regarded in their particular markets.

AN INVITATION

to Contestants of the World Ploughing Contest. We invite you to visit the Finegand Works during your tour of the bountiful South Otago countryside.

Visit the works with the reputation for —

CONSISTENLY HIGH PERFORMANCES



THE SOUTH OTAGO FREEZING COMPANY LIMITED, BALCLUTHA

NEW ZEALAND PLOT STEWARDS

W. HOLMES
JOCK GARDINER
K. H. BOYLE
E. THOMPSON
JIM CURRAGH
A. A. HULSTON

Judges' Method of Scoring Grassland Ploughing

		Pts.
(1)	**The Opening "Split"** Competitors must make a split opening.	
	(a) Completeness of cutting through of the sod (earth) throughout the whole length and width of the crown	6
	(b) Straightness	4
	(The cleanliness of the open split will not be assessed provided there is only loose soil in the furrow).	
		10
(2)	**Crown** (also known as Ridge or Middle)—consisting of the opening and six rounds, i.e., 12 furrows each side (can be a 23 or 24-furrow crown)	
	(a) No grass visible	10
	(b) Straightness and uniformity	10
	(c) Closeness of the furrow slices against each other and conformity with the other furrow slices (no high ridge)	10
		30
(3)	**Weed Control**	
	(a) Burying of grass (skimmers must be used)	30
	(b) Completeness of cutting through or tearing free of the slice	10
		40
(4)	**Prospective Seed Bed**	
	(a) Uniformity of mould (no holes) and firmness underfoot	10
	(b) Closeness or packing	10
	(c) Soil made available	20
		40

FARMERS!

You're in safe hands when you take a step forward and insure successful farming by placing all your business with one of the following recognised leaders — specially equipped for advice on all your stock and agricultural problems.

THE NEW ZEALAND FARMERS'
CO-OPERATIVE ASSOCIATION OF CANTY. LTD.

DALGETY NEW ZEALAND LOAN

PYNE, GOULD, GUINNESS LTD.

WRIGHT STEPHENSON & CO. LTD.

NATIONAL MORTGAGE & AGENCY
CO. OF NEW ZEALAND LTD.

MEMBERS OF THE NORTH CANTERBURY STOCK AND STATION AGENTS ASSN.

(5) **Finish**

—comprising the last three rounds and the sole furrow

(a) Straightness	8
(b) Neatness (no loose soil or trash in the furrow)	6
(c) Regularity throughout	6
(d) Narrowness and shallowness (So that it is possible to work the finish into an even tilth leaving no deep hollow in subsequent cultivations).	12

Valuation Note:

Narrow and shallow is worth	12 points
Narrow and deep is worth	8 points
*Wide and shallow is worth	4 points
*Wide and deep is worth	0 points

(*the last two have a so-called "step")

(e) Closeness and uniformity of finishing furrows (the last furrow should be almost a full furrow)	8
	40

Note: (i) Only one tractor wheel-mark* to be visible which shall be on the cast-off.
(ii) The earth or sole furrow* must be laid towards competitor's own crown.

(6) **Ins and Outs**

Neatness and regularity	10
	10

(7) **General Appearance**

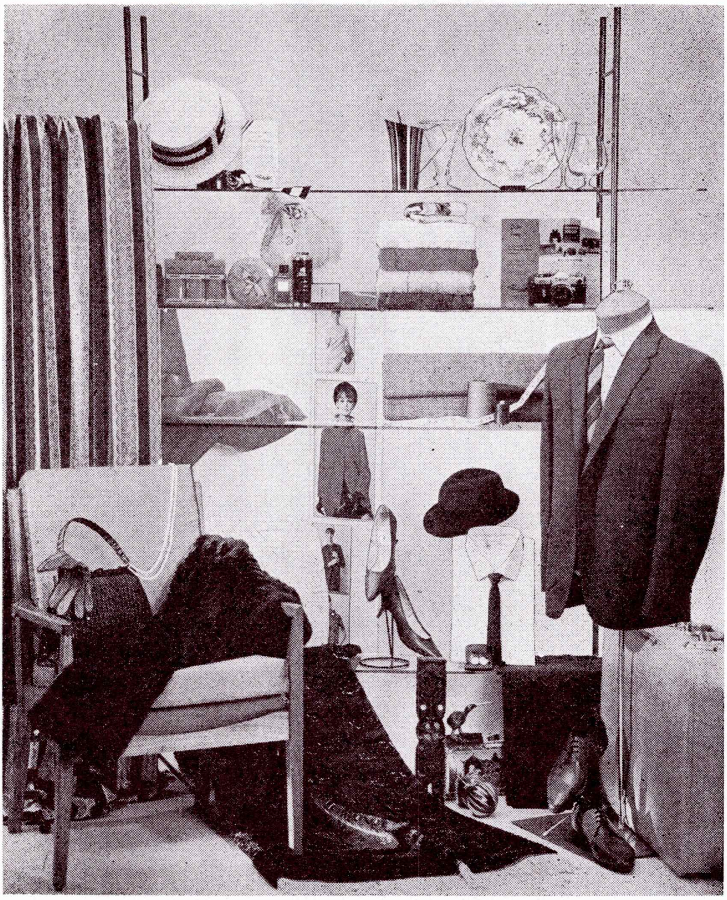
(a) No pairing or coupling of furrows	10
(b) A rounded furrow comb	10
(c) Straightness and no mistakes	10
	30
TOTAL MAXIMUM POINTS	200

Penalties

Points will be deducted for the following:

(a) 5 points will be deducted when the ploughing is up to 1 inch shallower than the minimum depth required.

(b) 10 points will be deducted when the ploughing is more than 1 inch shallower than the minimum depth required. (The depth will be judged on the average of 12 test measurings for each competitor).



Where quality is paramount . . .
shop at

Ballantynes

Cashel Street and Airport, Christchurch
Stafford Street, Timaru.

PROGRAMME

THURSDAY, MAY 11th, 1967

11.00 a.m.	Threshing.
12.00 p.m.	Queen of Furrow (see details on pages 160-162).
1.30 p.m.	Mannequin Parade (sponsored by N.Z. Wool Board).
1.30 p.m.	Threshing and Chaffcutting.
2.30 p.m.	Dog trials.
3.15 p.m.	Polo.
4.00 p.m.	(approx.) Presentation of Silver Plough by Hon. J. B. Gordon, Minister of Transport).

FRIDAY, MAY 12th, 1967

11.00 a.m.	Threshing.
12.30 p.m.	Threshing and Chaffcutting.
1.00 p.m.	Queen of Furrow (see details on pages 160-162).
2.00 p.m.	Dog trials.
2.45 p.m.	Polo

See the 6-Horse Team at Work.

SATURDAY, MAY 13th, 1967

11.00 a.m.	Threshing and Chaffcutting.
11.45 a.m.	Mannequin Parade (sponsored by N.Z. Wool Board).
12.30 p.m.	Queen of Furrow (see details on pages 160-162).
1.30 p.m.	Presentation Queen of Furrow.
2.00 p.m.	Band.
2.30 p.m.	Unveiling of Cairn of Peace.
2.45 p.m.	Final Dogs Trial and Presentation.
3.30 p.m.	Polo.

Exhibition of Ploughing on all Days.

Programme Subject to Alteration.

Ploughing Timetable

Atlantic Silver Plough Final

THURSDAY, MAY 11, 1967

8.00 a.m.	Tractors assemble for servicing.
9.15 a.m.	Tractors assemble for parade.
9.30 a.m.	Parade to plots led by the St. Andrew's College Pipe Band.
10.30 a.m.	Ploughing Commences.
10.50 a.m.	Ploughing ceases for judging of openings.
11.05 a.m.	Ploughing re-starts.
1.40 p.m.	Green warning signal.
1.45 p.m.	Red signal — all ploughing ceases.
2.00 p.m.	Tractors parade from plots.

1967 Queen of the Furrow Contest

The 1967 Queen of the Furrow Contest is open to girls between 18 and 25 who are members of the farming community.

Points are awarded for (a) Personality and speech, (b) Deportment, (c) Dress and appearance.

The judging panel comprises four qualified judges, representing Atlantic, the N.Z. Ploughing Association, The N.Z. Wool Board and QANTAS.

The winner will attend the Australian International Ploughing Contest at Wangaratta on May 20, 1967, as part of her ten day trip.

All Contestants will be guests at the presentation ceremony and concert for the winners in the World Ploughing Contest, on Saturday, May 13, in Christchurch.

TIMETABLE:

May 11.

12 Noon—All Contestants parade at Ploughing Contest site for preliminary judging.

1.30 p.m.—Mannequin Parade presented by the N.Z. Wool Board.

May 12.

1 p.m.—Semi-Finalists parade at Ploughing Contest site.

May 13.

11.45 a.m.—Mannequin Parade presented by the N.Z. Wool Board.

12.30 p.m.—Ten Finalists in Queen of the Furrow Contest parade for final judging.

1.30 p.m.—(approx.) Results announced and presentation of prizes.

Anne Strang — 1966 Silver Plough Queen.

The 1967 Queen of the Furrow wins:

Return Air Travel to Australia by QANTAS. During her stay in Australia she'll attend the Australian International Ploughing Match at Wangaratta, on May 20. She also wins a Wool Wardrobe presented by the New Zealand Wool Board and New Zealand Farmers' Co-op. Assn. of Canterbury Ltd., plus £50 spending money donated by the New Zealand Wool Board, plus 10 days accommodation and air travel in Australia donated by the Atlantic Union Oil Co. (N.Z.) Ltd. Approximate total value £250.

2ND PRIZE:

Accommodation donated by the Tourist Hotel Corporation at its new hotel at Te Anau for one week, plus return travel from the runner-up's home town and spending money. The Tourist Hotel Corporation have extended the offer of free accommodation to make it for two so that the runner-up can be accompanied by a friend.

3RD PRIZE:

Max Factor Cosmetics to the value of £15-15-0 and a free beauty consultation.

4TH PRIZE:

Zip de luxe Hair Dryer (value £14-5-0) donated by Zip Industries Ltd.

5TH PRIZE:

Zip mini hair dryer (value £9-17-6) donated by Zip Industries Ltd.

All Contestants will receive a gift of Max Factor Swedish formula hand cream.

OUR SERVICE IS A SMILE WIDE . . .

TASMAN
RENTAL CARS LTD

OFFICIAL RENTAL CAR OPERATORS FOR THE CHAMPIONSHIPS

★

MINIS - SMALL & LARGE CARS
STATION WAGONS - VANS

★

Phone 64-937 44 Lichfield Street, Christchurch.
Offices and Branches throughout New Zealand.

World Ploughing Contest, 1965

THE LAST WORLD PLOUGHING CONTEST TO BE HELD

(*Contributed by H. A. Walker, N.Z Contestant*)

It was indeed a great honour for me to be chosen to represent New Zealand at the World Ploughing Contest in Norway on the 8th and 9th October. I found it an enriching and unforgettable experience.

To arrive at least a week before the contest would, I feel, be a great help to future competitors, as I found I hadn't sufficient time to practise before the contest commenced.

The soil conditions for both practise and the contest were very wet and sour, as they had had 11 inches of rain prior to our arrival. However, we experienced fine sunny days for the contest.

The Ransome's team of experts was a great help to me and readily gave me every assistance with any problems that arose. My grateful thanks to a fine team of men.

Out of the 22 countries represented this year, 42 ploughmen competed for the coveted Golden Plough. This year being the first time that East Germany has participated in a World Contest.

During the first day I found the full digger ploughing on the stubble of a reasonably high standard. However, on the second day in the lea ploughing, the over-all standard was not high, and most competitors found the rubber-like type of soil very hard to manage. In fact it was headed Timothy with a stubble of seven to eight inches long.

We found Norway a beautiful and hospitable country, and our kind hosts did everything possible to make our short stay a memorable one by showing us the wonderful scenery of their country, while, at the same time, giving us an informative insight into their farming way of life.

We visited typical Norwegian farms, and were taken into their homes and shown through their factories and schools. We went on a two-day bus trip and visited their museums high up on the mountains, and also their ski resorts. A highlight of our visit was when each ploughman was presented to the King of Norway, King Olav V, in the Oslo City Hall.

To have to leave the many new friends and fellow sportsmen was, indeed, a sad occasion for us all, as we had all been true companions in spite of language barriers and had shared in a wonderful experience together.

After the contest was over I was invited to compete at the Northern Ireland Championships in November. Once again we were given warm and sincere hospitality wherever we went. Our hosts were Lawrence and Kathleen McMillan who farm at Dundonald.

The ploughing in Northern Ireland was of a fairly high standard. It was all hydraulic ploughing, as no one was allowed to compete with a trailing plough.

To visit my parents and friends in Scotland was a wonderful thrill to me, it then being 15 years since I emigrated to New Zealand.

I would like to thank my manager, Mr Ross Murray, for taking the responsibility of meetings, etc., off my shoulders and in so doing left me to concentrate on my ploughing.

Our grateful thanks to the Atlantic Union Oil Co., the Massey-Ferguson Co., and the Firestone Tyre Co., for all their kindness, help and hospitality which made the trip such a memorable one for both my wife and myself. Also special thanks to my brother for managing my farm and my sister for looking after our children during our trip.

YOUR NATIONAL TRAVEL SERVICE

For Coach - Rail - Sea and Air Bookings

TIKI COACH TOURS, HOTEL AND
MOTEL BOOKINGS

Car Space on "ARAMOANA", "ARANUI",
"WAHINE" and "MAORI"

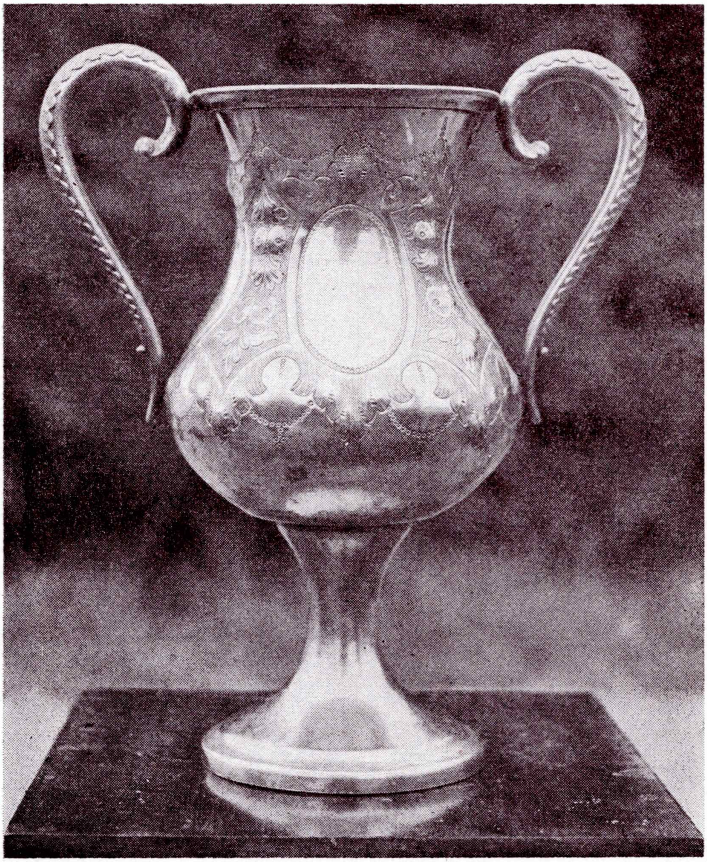
GOVERNMENT TOURIST BUREAU

GOVERNMENT LIFE BUILDING

P.O. Box 2105 **Phone 65-959**

Open Friday Night and Saturday Morning

Ploughing Trophy 93 Years Old



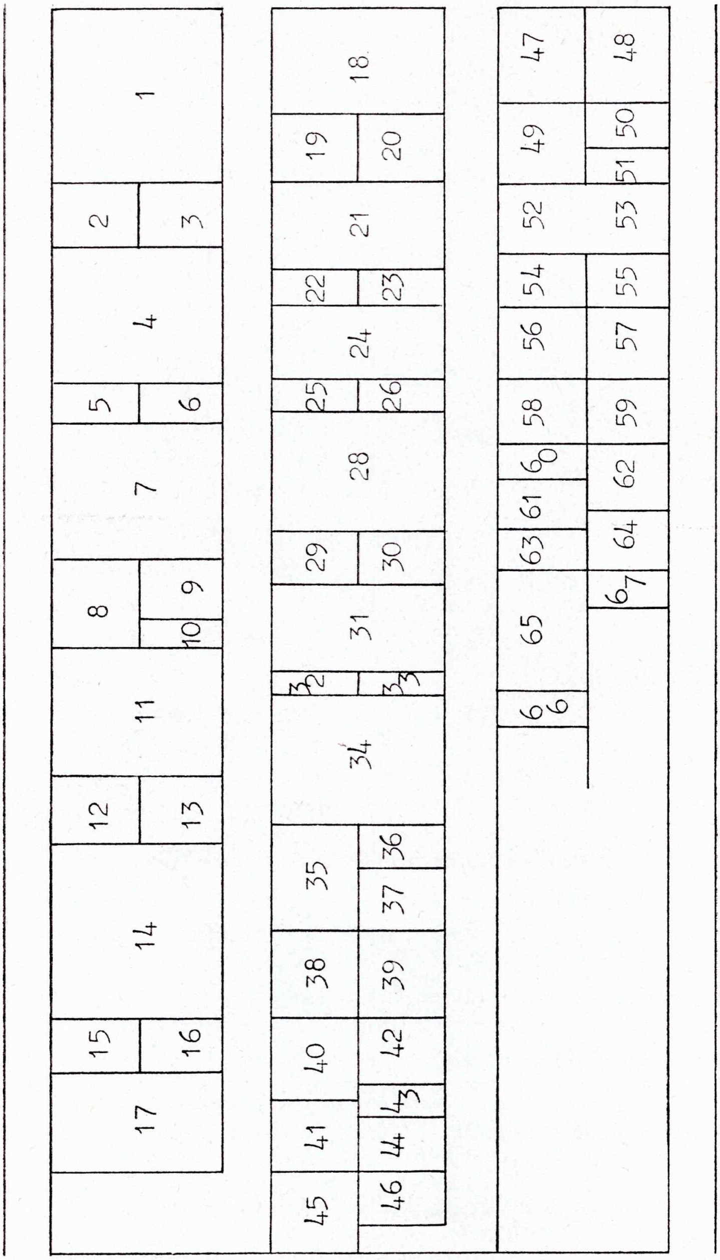
The pewter cup pictured above is the trophy presented as the first prize at a ploughing match in Christchurch, New Zealand, 93 years ago. It is now in the hands of Mrs A. B. Calder, of Halkett, near Christchurch-who is the grand-daughter of the winner, Mr Adam Whyte. An inscription on the cup says:

> *"Presented by Mr J. Carl, Empire Hotel, Christchurch, to the Papanui Ploughing Match, August 6th, 1874, to Mr Adam Whyte, 1st prize, 1st class".*

Mrs Calder still has the plough with which the trophy was won. It can be seen on the Massey-Ferguson stand.

PLAN OF TRADE SPACE

SCALE $\frac{1}{8}''$ = 10 ft.



List of Exhibitors

1. C. B. Norwood
2. Ernest Hayes
3. Cyclone Industries
4. Ford
5. Wigram Posts
6. Canterbury Seed Co.
7. MacEwans
8. Atlantic
9.
10. Murphy Pick-ups
11. A. R. Mackay
12. A. Kuyf & Co.
13. Bray's Motors
14. I.H.C.
15. Price
16. N.Z. Farmers
17. Duncans P. & D.
18. Fred Smith
19. Mid-Canty.
20. McVicars
21. Bisleys
22. McKendry
23. Cuddon & Stewart
24. Dorings
25. Vibrapac
26. Croziers
28. Andrews and Bevan
29. C. B. Powell
30. Wright Stephenson and Co.
31. Cable Price
32.
33. Hamilton, C. W. F.
34. Gough G. & Hamer
35. Dominion Motors
36. Clipper Caravans
37. Independent Tractor Co.
38. Consolidated Concrete
39. Universal Lime Co.
40. Clough, W. R.
41. A. Williams
42. Croydon Motors
43. Jones Engineering
44. Canty. Caravan Centre
45. John Curtis
46. Pyne, Gould Guinness
47. Motorways
48. Ian Giltrap
49. Ross Bullock
50. Wellbuilt Products
51. Cresta Caravans
52. Burnetts Motors
53. Burnetts Motors
54. Drummond Industries
55. Hurricane Fence
56. Ransley Motors
57. C. P. Campbell
58. C. D. Rudd
59. Wiseman's
60. A. S. Paterson
61. Begg Engineering
62. Walker Products
63. Linton Engineering
64. Butler Timber
65. Case, J. I.
66. Port Bros.
67. Murray Prattley
68. D. Bissett
69. J. Cameron Lewis
70. P. T. Taylor

Contents

page

Welcome from The Governor-General 3
World Ploughing Organisation 5
Welcome from The Prime Minister 7
W.P.O. Governing Board 9
Ploughmen's Progress 13
Competitors 16
Welcome from The Minister of Agriculture 27
Programme 29
Previous Contests and Winners 33
Competitors' Points Table 34
Plan of grounds 38-39
Farming in New Zealand 45
The Maori People 53
Ploughing in New Zealand 55
We Fly Through the Air 59
W.P.O. Research Committee 65
Canterbury Lamb 69
Soil 75
Hillside Farming in Austria 85
History of Ploughing in New Zealand 88
Rice 91
Harry Ferguson 98
Amelioration Ploughing 101
Tillage Implements for the Orchard 109
Ploughing Ceremonies 117
Welcome to Rhodesia 125
Layman's Guide to Good Ploughing 130
Ploughing Step by Step 132
Glossary of Terms 135
Silver Plough Section 137
Programme 159
Queen of the Furrow Contest 160
Plan and List of Trade Exhibitors 166-167

first tractor tyre ever designed with *ANGLE BRACED* lugs . . . *TORQUE GRIP* by Goodyear . . . outpulls, outlasts all others

Angle bracing strengthens the lugs in the same way that corrugations strengthen steel. They stay rigid — they're longer-self cleaning. They give a powerful unclogged bite each time around. Convert more of your tractor's power to traction. Specify Torque Grip for your tractor. From your nearest Goodyear dealer.

Goodyear — chosen by twelve out of the last thirteen World Ploughing Champions.

GOODYEAR

Atlantic are proud to sponsor the New Zealand Ploughing Championship for the Atlantic Silver Plough and to help foster better utilisation of New Zealand's land. The Silver Plough is just one example of Atlantic's continuing service to the farming community.

Atlantic ATLANTIC UNION OIL COMPANY (N.Z.) LIMITED